S.N. 10/724361
AU 1754

AMENDMENT OF THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A process for the decomposition of N_2O to N_2 and O_2 comprising: decomposing N_2O to N_2 and O_2 ~~carried out~~ at a temperature of between 700 and 1 000°C and at a ~~high~~ HSV of more than about 50,000 h^{-1} ~~characterized in that it is carried out~~ in the presence of a catalyst that comprises ~~composed of~~ a mixed oxide of zirconium and of cerium predominantly existing in the form of a solid solution.

2. (currently amended): The process as claimed in claim 1, ~~characterized in that~~ wherein the catalyst exhibits an effective specific surface of greater than 25 m²/g.

3. (currently amended): The process as claimed in claim 1, ~~characterized in that~~ wherein the ZrO_2/CeO_2 ratio by weight in the catalyst is between 80/20 and 20/80 ~~and preferably between 70/30 and 30/70~~.

4. (currently amended): The process as claimed in ~~one of~~ claims 1 ~~to 3~~, ~~characterized in that~~ wherein the catalyst also comprises yttrium.

5. (currently amended): The process as claimed in one of claims 1 to 4, ~~characterized in that~~ wherein the catalyst has a specific surface of ~~the fresh catalyst is between~~ 60 and 150 m²/g when fresh.

6. (currently amended): A process for the decomposition to N_2 and O_2 of N_2O present in the effluent from a unit for the production of nitric acid, ~~characterized in that~~ comprising: decomposing N_2O to N_2 and O_2 with a catalyst that comprises ~~composed of~~ a mixed oxide of zirconium and of cerium in the form of a solid solution is positioned under ~~the~~ at least one platinum gauze~~s~~ of the reactor for the oxidation of ammonia, wherein the decomposition is carried out at a temperature of between 700°C and 1000°C and at a HSV of more than about 50,000 h^{-1}.

7. (new): The process as claimed in claim 1, wherein the ZrO_2/CeO_2 ratio by weight in the catalyst is between ~~70/30 and 30/70~~.

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=> file reg
FILE 'REGISTRY' ENTERED AT 15:22:35 ON 08 FEB 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)



=> display history full l1-


     FILE 'REGISTRY' ENTERED AT 14:18:07 ON 08 FEB 2006
                    E DINITROGEN OXIDE/CN
L1            1 SEA "DINITROGEN OXIDE"/CN OR "DINITROGEN OXIDE (N2O)"/CN
                    E NITROGEN/CN
L2            1 SEA NITROGEN/CN
                    E OXYGEN/CN
L3            1 SEA OXYGEN/CN
                    E ZIRCONIUM OXIDE/CN
L4            2 SEA "ZIRCONIUM OXIDE"/CN
                    E CERIUM OXIDE/CN
L5            2 SEA "CERIUM OXIDE"/CN
L6          168 SEA (ZR(L)O)/ELS (L) 2/ELC.SUB
L7           90 SEA (CE(L)O)/ELS (L) 2/ELC.SUB
L8         2293 SEA (ZR(L)CE(L)O)/ELS
L9          147 SEA L8 (L) 3/ELC.SUB

     FILE 'HCA' ENTERED AT 14:50:28 ON 08 FEB 2006
L10       31555 SEA L1 OR DINITROGEN#(W)(OXIDE# OR MONOXIDE#) OR
                (NITROGEN# OR N)(W)MONOXIDE#
L11      425895 SEA L2 OR N2 OR (NITROGEN# OR N)(2A)(GAS## OR GASEOUS?
                OR GASIF? OR STREAM? OR FLOW OR FLOWS OR FLOWED OR
                FLOWING#)
L12      535446 SEA L3 OR O2 OR (OXYGEN# OR O)(2A)(GAS## OR GASEOUS? OR
                GASIF? OR STREAM? OR FLOW OR FLOWS OR FLOWED OR FLOWING#)

L13      126539 SEA L4 OR L6 OR ZRO OR ZRO2 OR (ZIRCONIUM# OR ZR)(W)(OXID
                E# OR MONOXIDE# OR DIOXIDE#)
L14       32026 SEA L5 OR L7 OR CEO OR CEO2 OR (CERIUM# OR CE)(W)(OXIDE#
                OR MONOXIDE# OR DIOXIDE#)
L15        1504 SEA L9
L16        4888 SEA (L10 OR N2O) AND L11 AND L12
L17           2 SEA L16 AND L15
L18          19 SEA L16 AND L13 AND L14
L19             QUE CAT# OR CATALY?
L20           2 SEA L17 AND L19
L21          14 SEA L18 AND L19
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    FILE 'REGISTRY' ENTERED AT 15:00:55 ON 08 FEB 2006
L22          500 SEA (N(L)O)/ELS (L) 2/ELC.SUB

    FILE 'HCA' ENTERED AT 15:04:57 ON 08 FEB 2006
L23       374511 SEA L22 OR NOX OR (NITROGEN# OR N)(W)(OXIDE# OR MONOXIDE#
                  OR DIOXIDE# OR TRIOXIDE# OR TETRAOXIDE# OR TETROXIDE#
                 OR PENTOXIDE# OR PENTAOXIDE# OR SESQUIOXIDE#) OR NO2 OR
                 NO4 OR NO5 OR N2O OR N2O2 OR N2O3 OR N2O4 OR N2O5 OR N3O
                 OR N3O4 OR N3O5 OR N4O OR N4O2 OR N4O3
L24           72 SEA N4O4 OR N5O OR N5O2 OR N5O3 OR N5O4 OR N5O5
L25       437628 SEA L2 OR N2 OR (NITROGEN# OR N)(2A)(GAS## OR GASEOUS?
                 OR GASIF? OR STREAM? OR FLOW OR FLOWS OR FLOWED OR
                 FLOWING# OR OFFGAS? OR BYPRODUCT? OR BY(W)PRODUCT? OR
                 EFFLUENT? OR FUME# OR FUMING# OR EFFLUV? OR EFFLUX? OR
                 VENT? OR DISCHARG? OR EMISSION? OR EMANAT? OR FLUEGAS?
                 OR EFFUS?)
L26        41427 SEA (NITROGEN# OR N)(2A)(ATM# OR ATMOS?)
L27       540871 SEA L3 OR O2 OR (OXYGEN# OR O)(2A)(GAS## OR GASEOUS? OR
                 GASIF? OR STREAM? OR FLOW OR FLOWS OR FLOWED OR FLOWING#
                 OR OFFGAS? OR BYPRODUCT? OR BY(W)PRODUCT? OR EFFLUENT?
                 OR FUME# OR FUMING# OR EFFLUV? OR EFFLUX? OR VENT? OR
                 DISCHARG? OR EMISSION? OR EMANAT? OR FLUEGAS? OR EFFUS?)
L28        33436 SEA (OXYGEN# OR O)(2A)(ATM# OR ATMOS?)
L29        13760 SEA (L10 OR N2O OR L23 OR L24) AND (L11 OR L25 OR L26)
                 AND (L12 OR L27 OR L28)
L30           11 SEA L29 AND L15
L31            9 SEA L30 AND L19
L32           67 SEA L29 AND L13 AND L14
L33           42 SEA L32 AND L19
L34           29 SEA L17 OR L18 OR L20 OR L21 OR L31 OR L30
L35           25 SEA L33 NOT L34
L36           18 SEA L32 NOT (L34 OR L35)
L37           22 SEA L34 AND (1840-2002/PY OR 1840-2002/PRY)
L38           22 SEA L35 AND (1840-2002/PY OR 1840-2002/PRY)
L39           18 SEA L36 AND (1840-2002/PY OR 1840-2002/PRY)



=> file hca
FILE 'HCA' ENTERED AT 15:22:43 ON 08 FEB 2006
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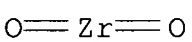
L37 ANSWER 1 OF 22 HCA
140:411386 Process for high-temperature **catalytic** decomposition of **N2O** to **N2** and **O2**.
Hamon, Christian; Duclos, Delphine (Institut Regional des Materiaux Avances IRMA, Fr.; Grande Paroisse S. A.). Fr. Demande FR 2847830 A1 20040604, 12 pp. (French). CODEN: FRXXBL. APPLICATION: FR 2002-15135 20021202.

AB The invention relates to a **catalytic** process of decompn. of **N2O** out of **N2** and **O2**. This process is implemented at a high temp. generally ranging between 700 and 1000.degree.C, at a high space velocity and in the presence of a **catalyst** made up of a mixed cerium and **zirconium oxide** being presented in the form of solid soln.

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses **65453-23-8**, Cerium **zirconium oxide**
(process for high-temp. **catalytic** decompn. of **N2O** to **N2** and **O2**)

RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



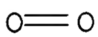
RN 65453-23-8 HCA
CN Cerium zirconium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Ce	x	7440-45-1

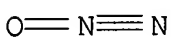
IT **7727-37-9P**, Nitrogen, preparation **7782-44-7P**, Oxygen, preparation
(process for high-temp. **catalytic** decompn. of **N2O** to **N2** and **O2**)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **10024-97-2**, Nitrous oxide, reactions
(process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)
RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-86
ICS B01D053-56; B01J021-06; B01J023-10; C01B021-40; B01D135-00
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST high temp **catalytic** decompn nitrous oxide cerium
zirconium oxide
IT Air pollution
(control; process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)
IT Combustion gases
Decomposition **catalysts**
Exhaust gases (engine)
Flue gases
Solid solutions
Waste gases
(process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
7440-65-5, Yttrium, uses **65453-23-8**, Cerium
zirconium oxide
(process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)
IT **7727-37-9P**, Nitrogen, preparation **7782-44-7P**,
Oxygen, preparation
(process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)
IT **10024-97-2**, Nitrous oxide, reactions

(process for high-temp. **catalytic** decompn. of
N2O to **N2** and **O2**)

L37 ANSWER 2 OF 22 HCA COPYRIGHT 2006 ACS on STN
140:150829 Method to produce exhaust gas treatment **catalyst**.
Sakurai, Kenji; Ito, Junji; Ichinose, Kiyoshi (Nissan Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004033933 A2 20040205, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-195363 20020704.

AB The **catalyst** consists of an undercoat layer contg. Al2O3 and a **catalyst** layer on a honeycomb support. The undercoat layer contains discontinuous holes having a pore size of .gtoreq.2 .mu.m (5-20 % of the total area), and **O2** storage materials contg. 1-50 wt.% of composite oxide of Ce/Zr and/or Ce/Pr. The **catalyst** is excellent in **NOx** removal, esp. at relatively low temps.

IT **213131-04-5**, Cerium zirconium oxide (Ce0.68Zr0.32O2)
(method to produce exhaust gas treatment **catalyst**)
RN 213131-04-5 HCA
CN Cerium zirconium oxide (Ce0.68Zr0.32O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.32	7440-67-7
Ce	0.68	7440-45-1

IT **7782-44-7**, Oxygen, uses
(method to produce exhaust gas treatment **catalyst**)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

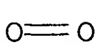
O=O

IC ICM B01J035-04
ICS B01D053-94; B01J023-63; B01J032-00; F01N003-10; F01N003-28
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST exhaust **gas** treatment **catalyst nitrogen oxide** undercoat layer
IT **Catalysts**
(honeycomb; method to produce exhaust gas treatment **catalyst**)
IT Exhaust gases (engine)
Porous materials
(method to produce exhaust gas treatment **catalyst**)

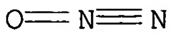
IT 7440-44-0, Activated carbon, uses
(activated; method to produce exhaust gas treatment **catalyst**)
IT 1344-28-1, Alumina, uses **213131-04-5**, Cerium zirconium oxide (Ce0.68Zr0.32O2) 220320-71-8, Cerium praseodymium oxide (Ce0.7Pr0.3O2)
(method to produce exhaust gas treatment **catalyst**)
IT **7782-44-7**, Oxygen, uses
(method to produce exhaust gas treatment **catalyst**)
IT 11104-93-1, **Nitrogen oxide, NOx**, processes
(method to produce exhaust gas treatment **catalyst**)
IT 10139-58-9, Rhodium nitrate
(method to produce exhaust gas treatment **catalyst**)

L37 ANSWER 3 OF 22 HCA COPYRIGHT 2006 ACS on STN
139:397726 Use of surface-modified nanoparticles for oil recovery. Baran, Jimmie R.; Cabrera, Oswaldo J. (3M Innovative Properties Company, USA). U.S. Pat. Appl. Publ. US 2003220204 A1 20031127, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-441721 20030520. PRIORITY: US 2002-2002/PV383205 20020524.
AB The surface-modified nanoparticles are suitable for use in fluids used to recover hydrocarbons from underground formations. The use of surface-modified nanoparticles in such fluids provides foams that are stable under pressure yet have a shorter foam lifetime than typical surfactant-stabilized foams after the pressure is released or lowered.
IT **7727-37-9**, Nitrogen, uses **7782-44-7**, Oxygen, uses **10024-97-2**, Nitrous oxide, uses
(foaming agent; use of surface-modified nanoparticles for oil recovery)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

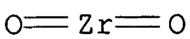


RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(nanoparticles; use of surface-modified nanoparticles for oil recovery)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM E21B001-00
INCL 507200000
CC 51-2 (Fossil Fuels, Derivatives, and Related Products)
IT 124-38-9, Carbon dioxide, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses **7727-37-9**, Nitrogen, uses **7782-44-7**, Oxygen, uses **10024-97-2**, Nitrous oxide, uses
(foaming agent; use of surface-modified nanoparticles for oil recovery)
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses 1314-62-1, Vanadia, uses 1327-33-9, Antimony oxide 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-28-1, Alumina, uses 7429-90-5, Aluminum, uses 13463-67-7, Titania, uses
(nanoparticles; use of surface-modified nanoparticles for oil recovery)

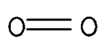
L37 ANSWER 4 OF 22 HCA COPYRIGHT 2006 ACS on STN
138:355691 Materials and methods for the purification of inert, nonreactive, and reactive gases. Watanabe, Tadaharu; Fraenkel, Dan; Torres, Robert, Jr. (Matheson Tri-Gas, Inc., USA). PCT Int. Appl. WO 2003037484 A1 20030508, 25 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US35006 20021030. PRIORITY: US 2001-2001/PV33632U 20011031; US 2002-2002/284423 20021029.

AB Regenerable gas purifier materials are provided capable of reducing the level of contaminants such as oxygen and water in an inert, nonreactive or reactive gas streams to parts-per-billion levels or sub-parts-per-billion levels. The purifier materials comprise a thin layer of one or more reduced forms of a metal oxide coated on the surface of a nonreactive substrate. The thin layer may further contain the completely reduced form of the metal.

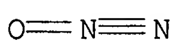
IT **7727-37-9**, Nitrogen, processes **7782-44-7**, Oxygen, processes **10024-97-2**, Nitrogen oxide (**N2O**), processes
(regenerable materials and methods for the purifn. of inert, nonreactive, and reactive gases)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

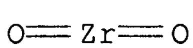


RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **1314-23-4**, Zirconia, uses **11129-18-3**, **Cerium oxide**
(regenerable materials and methods for the purifn. of inert, nonreactive, and reactive gases)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



RN 11129-18-3 HCA
CN Cerium oxide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM B01D053-02
CC 48-3 (Unit Operations and Processes)
IT 124-38-9, Carbon dioxide, processes 630-08-0, Carbon monoxide,

processes 1333-74-0, Hydrogen, processes 2551-62-4, Sulfur fluoride (SF6) 7439-90-9, Krypton, processes 7440-01-9, Neon, processes 7440-37-1, Argon, processes 7440-63-3, Xenon, processes 7446-09-5, Sulfur dioxide, processes 7446-11-9, Sulfur trioxide, processes **7727-37-9**, Nitrogen, processes 7732-18-5, Water, processes **7782-44-7**, Oxygen, processes 7783-06-4, Hydrogen sulfide (H2S), processes 7783-54-2, Nitrogen fluoride (NF3) **10024-97-2**, Nitrogen oxide (**N2O**), processes 10043-92-2, Radon, processes 10102-43-9, Nitric oxide, processes 10102-44-0, Nitrogen dioxide, processes 10544-72-6, Nitrogen oxide (N2O4) 13827-32-2, Sulfur oxide (SO) 53238-43-0, Sulfur oxide (S2O2)
(regenerable materials and methods for the purifn. of inert, nonreactive, and reactive gases)

IT 1304-76-3, Bismuth oxide, uses 1313-99-1, Nickel oxide (NiO), uses **1314-23-4**, Zirconia, uses 1314-35-8, Tungsten oxide, uses 1327-33-9, Antimony oxide 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-28-1, Alumina, uses 1344-70-3, Copper oxide 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 7664-41-7, Ammonia, uses 11098-99-0, Molybdenum oxide 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide **11129-18-3**, **Cerium oxide** 11129-60-5, Manganese oxide 13463-67-7, Titania, uses 16833-27-5, Oxide 159995-97-8, Aluminum silicon oxide
(regenerable materials and methods for the purifn. of inert, nonreactive, and reactive gases)

L37 ANSWER 5 OF 22 HCA COPYRIGHT 2006 ACS on STN

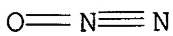
138:230418 Synthesis of YBa2Cu3O7 superconductor films using sub-atmospheric processing. Wiesmann, Harold; Solovyov, Vyacheslav (Brookhaven Science Associates, USA). U.S. Pat. Appl. Publ. US 2003050195 A1 20030313, 18 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-950888 20010912.

AB The present invention is a method of forming thick, uniform films of cryst. YBa2Cu3O7 superconductors on flexible substrates at high growth rates that includes forming a precursor film comprising BaF2, Y and Cu. The precursor film is heat-treated at a temp. >500.degree. in the presence of O, N and H2O vapor at sub-atm. pressure to form a cryst. structure. The cryst. structure is then annealed at .apprx.500.degree. in the presence of O to form the cryst. YBa2Cu3O7 film. The YBa2Cu3O7 film formed by this method has a resistivity of from .apprx.100 to .apprx.600 .mu.Ohm-cm at room temp. and a crit. c.d. measured at 77 K in a magnetic field of 1 T of 0.1 MA/cm2 or greater.

IT **10024-97-2**, Nitrous oxide, processes
(in synthesis of alk. earth rare earth cuprate superconductor films)

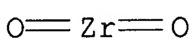
RN 10024-97-2 HCA

CN Nitrogen oxide ($N2O$) (7CI, 8CI, 9CI) (CA INDEX NAME)

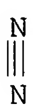


IT **1306-38-3, Cerium dioxide**, processes
1314-23-4, Zirconium oxide (**ZrO2**
), processes
(substrate; synthesis of barium copper yttrium oxide
superconductor films)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **7727-37-9**, Nitrogen, uses **7782-44-7**, Oxygen, uses
(synthesis of barium copper yttrium oxide superconductor films in
atm. of)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

IC ICM H01B001-00
ICS C10F005-00
INCL 505100000
CC 76-4 (Electric Phenomena)
Section cross-reference(s): 57, 75
IT 7782-41-4, Fluorine, processes **10024-97-2**, Nitrous oxide,
processes 10028-15-6, Ozone, processes
(in synthesis of alk. earth rare earth cuprate superconductor
films)

IT **1306-38-3, Cerium dioxide**, processes
1309-48-4, Magnesia, processes **1314-23-4, Zirconium oxide (ZrO2)**, processes
7440-02-0, Nickel, processes 7440-22-4, Silver, processes
12003-65-5, Aluminum lanthanum oxide (AlLaO3) 12060-59-2, Strontium titanate 12728-56-2 64417-98-7, Yttrium **zirconium oxide**
(substrate; synthesis of barium copper yttrium oxide superconductor films)

IT **7727-37-9**, Nitrogen, uses 7732-18-5, Water, uses **7782-44-7**, Oxygen, uses
(synthesis of barium copper yttrium oxide superconductor films in atm. of)

L37 ANSWER 6 OF 22 HCA COPYRIGHT 2006 ACS on STN

137:283313 A dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decomposition. Machida, M.; Watanabe, T.; Ikeda, S.; Kijima, T. (Faculty of Engineering, Department of Applied Chemistry, Miyazaki University, Miyazaki, 889-2192, Japan). Catalysis Communications, 3(6), 233-238 (English) **2002**. CODEN: CCAOAC. ISSN: 1566-7367. Publisher: Elsevier Science B.V..

AB The selective conversion of NO to **N2** in a stream of 0.08% NO, 0.28% H2, 10% **O2**, and He balance has been achieved for the first time using a serial dual-bed **catalytic** system. In the first bed at .ltoreq.100.degree., .apprx.80-90% of NO was converted into **N2/N2O** by selective redn. with H2, which could be **catalyzed** by Pt supported on TiO2-**ZrO2** or HY zeolites. Almost all the **N2O** thus formed in the first bed was successfully decompd. into **N2/ O2** over Pd/Al2O3 in the second bed at 400.degree.. The combination with **N2O** decompn. can broadly be applied to H2 selective **catalytic** redn. in a strongly oxidizing atm.

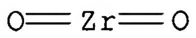
IT **1306-38-3, Cerium oxide (CeO2**), uses **1314-23-4**, Zirconia, uses
(**catalyst** support; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)

RN 1306-38-3 HCA

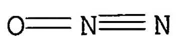
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(formation and redn. of; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)
RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST nitrogen oxide selective lean **catalytic** redn hydrogen dual bed; nitrous oxide formation redn nitrogen oxide selective **catalytic** redn
IT Flue gases
(NOx removal from; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)
IT Zeolite HY
Zeolite HZSM-5
Zeolite MCM-41
(**catalyst** support; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)
IT Reduction **catalysts**
Waste gases
(dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)
IT **1306-38-3**, **Cerium oxide** (**CeO2**), uses 1308-38-9, Chromium oxide (Cr2O3), uses 1312-81-8, Lanthanum oxide 1314-13-2, Zinc oxide, uses **1314-23-4**, Zirconia, uses 1317-34-6, Manganese oxide (Mn2O3) 1317-38-0, Copper oxide (CuO), uses 1344-28-1, Aluminum oxide (Al2O3), uses 13463-67-7, Titanium oxide (TiO2), uses 18282-10-5, Tin oxide (SnO2)
(**catalyst** support; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)
IT 1309-48-4, Magnesium oxide (MgO), processes 1313-99-1, Nickel oxide (NiO), processes
(**catalyst** support; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent

N2O decompn.)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses
(dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)

IT 11104-93-1, Nitrogen oxide (NOx), processes
(dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)

IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(formation and redn. of; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)

IT 1333-74-0, Hydrogen, processes
(reducing agent; dual-bed lean deNOx **catalyst** system consisting of NO-H2-**O2** reaction and subsequent **N2O** decompn.)

L37 ANSWER 7 OF 22 HCA COPYRIGHT 2006 ACS on STN

137:170628 Foams and plastic foams containing surface-modified nanoparticles and suitable for production of adhesive tapes. Kolb, Brant U.; Baran, Jimmie R., Jr.; Johnson, Michael A.; Johnson, Gordon G.; Lehmann, Megan P.; Sokalski, John S. (3M Innovative Properties Company, USA). PCT Int. Appl. WO 2002062881 A2 **20020815**, 35 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-US49667 20011226. PRIORITY: US 2001-2001/756422 20010108.

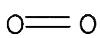
AB A foam compn. includes a vehicle and surface-modified nanoparticles disposed in the vehicle, with nanoparticles having a diam. .ltoreq. 100 nm. Silica, titania, alumina, zirconia and similar nanoparticles are modified with organosilane compds., carboxylic acids, sulfonic acids or phosphonic acids. The vehicle can be a polymer, such as polyester, polyurethane, aminoplast, alkyd resin or phenolic resin, or a liq., such as water, alc., aldehyde, ketone, ester or hydrocarbon. The polymeric foams obtained using the surface-modified nanoparticles as fillers are suitable for prodn. of adhesives and adhesive tapes. Thus, colloidal silica was modified with isooctyltrimethoxysilane (BS 1316) in 1-methoxy-2-propanol at 80.degree. overnight. These surface-modified nanoparticle (2%) were mixed with oligomers of isooctyl acrylate, acrylic acid and 1,6-hexanediol and **catalytic** amts. of Irgacure 651, and

used to prep. plastic foams by passing nitrogen through the mixt. Adhesive tapes were produced by spreading the foam on a PET substrate and exposing the sample to UV irradn.

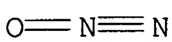
IT **7727-37-9**, Nitrogen, uses **7782-44-7**, Oxygen, uses **10024-97-2**, Nitrous oxide, uses
(foaming agent; plastic foams contg. surface-modified nanoparticles suitable for prodn. of adhesive tapes)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



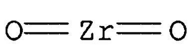
RN 10024-97-2 HCA
CN Nitrogen oxide (N_2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(nanoparticles; plastic foams contg. surface-modified nanoparticles suitable for prodn. of adhesive tapes)

RN 1306-38-3 HCA
CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



IC ICM C08J009-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 29, 39, 46
IT 124-38-9, Carbon dioxide, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses **7727-37-9**, Nitrogen, uses **7782-44-7**
, Oxygen, uses **10024-97-2**, Nitrous oxide, uses

(foaming agent; plastic foams contg. surface-modified nanoparticles suitable for prodn. of adhesive tapes)

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses 1314-62-1, Vanadia, uses 1327-33-9, Antimony oxide 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1344-28-1, Alumina, uses 7429-90-5, Aluminum, uses 13463-67-7, Titania, uses
(nanoparticles; plastic foams contg. surface-modified nanoparticles suitable for prodn. of adhesive tapes)

L37 ANSWER 8 OF 22 HCA COPYRIGHT 2006 ACS on STN

137:97948 Process for production of a composite **catalyst** to remove nitrogen oxides from exhaust gases of gas and diesel engines.. Berndt, Heinz; Richter, Manfred; Schuetze, Frank-Walter; Stroeder, Ulrich; Simon, Falk; Liese, Thorsten; Sawade, Thomas; Gruenert, Wolfgang (Institut Fuer Angewandte Chemie Berlin-Adlershof E.V., Germany; W. C. Heraeus Gmbh & Co. Kg; Ruhr-Universitaet Bochum). Ger. Offen. DE 10065717 A1 **20020711**, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10065717 20001222.

AB A composite **catalyst** for heterogeneous **catalytic** redn., treats nitrogen oxide in **oxygen** rich exhaust **gases** from mobile and stationary combustion engines through conversion with remaining or added hydrocarbons. The composite **catalyst** has cryst., porous aluminum silicate as substrate provided with an outside surface of redox-active CeOx species and on the internal surface, i.e. in the pores of the substrate indium-oxo species, which are Lewis acid and redox active. The external and internal substrate coating provides an improved **catalyst** with activity and stability in the presence of steam while gaining high selectivity for the nitrogen formation i. e. avoidance of **N2O** formation.

IT **1314-23-4**, Zirconia, uses **11129-18-3D**, **Cerium oxide**, nonstoichiometric
(prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

RN 11129-18-3 HCA

CN Cerium oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B01D053-86
ICS F01N003-08

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST SCR composite **catalyst** **nitrogen** oxide exhaust

gas; cerium oxide indium zeolite
composite **catalyst** nitrogen oxide removal

IT Reduction
(chemoselective, **catalytic**; prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

IT Beta zeolites
Mordenite-type zeolites
Zeolite ZSM-5
(prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

IT 1335-30-4, Aluminumsilicate
(**catalyst** carrier; prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

IT 1312-43-2, Indium oxide in2o3 1312-81-8, Lanthanum oxide
1314-23-4, Zirconia, uses **11129-18-3D**,
Cerium oxide, nonstoichiometric 12437-39-7
37382-23-3, Cerium hydroxide 55326-87-9, Indium hydroxide
(prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

IT 11104-93-1, Nitrogen oxide, processes
(prodn. process for composite **catalyst** to remove NOx from gasoline and diesel engine exhaust gases)

L37 ANSWER 9 OF 22 HCA COPYRIGHT 2006 ACS on STN

136:267224 Low temperature **catalytic** NOx-H2 reactions over Pt/TiO2-**ZrO2** in an excess oxygen. Machida, M.; Ikeda, S.; Kurogi, D.; Kijima, T. (Faculty of Engineering, Department of Applied Chemistry, Miyazaki University, Miyazaki, 889-2192, Japan). Applied Catalysis, B: Environmental, 35(2), 107-116 (English) **2001**. CODEN: ACBEE3. ISSN: 0926-3373. Publisher: Elsevier Science B.V..

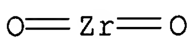
AB Pt **catalysts** supported on non-cryst. TiO2-**ZrO2** binary oxides were highly active for selective NO redn. in a stream of NO (0.08 vol. percent), H2 (0.08-0.56 vol. percent), and **O2** (10 vol. percent) at low temps. (<100.degree.). NO conversion to **N2/N2O** occurred at >0.08 vol. percent H2; selectivity to **N2** increased with increasing H2 concn. In-situ DRIFTS measurement suggested the high selectivity in this temp. range was closely related to a stoichiometric reaction between H2 and NO oxidatively adsorbed as NO3-. By comparison with results from a parallel study of H2-**O2** combustion, it is proposed that almost all reacted H2 is consumed by the redn. of NO3- species, which covered the Pt surface to inhibit H2-**O2** combustion. NO redn. activity was sensitive to **catalyst** pretreatment; the **catalyst** reduced in H2 allowed 89% NO conversion at 90.degree., whereas the **catalyst** treated in

O2 required 175.degree. to attain a lower conversion of 50%. The pretreatment effect is closely related to the reactivity of NO3- adsorbates produced via different routes.

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(alone and with metal oxides; platinum supported by; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

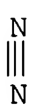
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

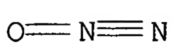


IT **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7**, Oxygen, reactions
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST selective **catalytic** redn waste **gas** **nitrogen** oxide; hydrogen redn waste **gas** **nitrogen** oxide; titania zirconia binary oxide supported platinum redn **catalyst**

IT Waste gases
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT Reduction **catalysts**
(titania-zirconia supported platinum; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses 13463-67-7, Titania, uses 18282-10-5, Tin dioxide
(alone and with metal oxides; platinum supported by; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT 7631-86-9, Silica, uses
(alone and with titania; platinum supported by; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT 10102-43-9, Nitric oxide, processes 11104-93-1, Nitrogen oxide, processes
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT **7782-44-7**, Oxygen, reactions
(**catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen**

oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT 1344-28-1, Alumina, uses
(platinum supported by; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT 1333-74-0, Hydrogen, reactions
(reductant; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

IT 7440-06-4, Platinum, uses
(titania-zirconia supported; **catalyst** prepn. and temp. effect on selective **catalytic** redn. of waste **gas nitrogen** oxide by hydrogen over single oxide and binary oxides-supported platinum in excess oxygen)

L37 ANSWER 10 OF 22 HCA COPYRIGHT 2006 ACS on STN

136:122504 TWC behaviour of platinum supported on high and low surface area cerium/zirconium mixed oxides. Gonzalez-Velasco, Juan R.; Gutierrez-Ortiz, Miguel A.; Marc, Jean-Louis; Botas, Juan A.; Gonzalez-Marcos, M. Pilar; Blanchard, Gilbert (Departamento Ingenieria Quimica, Facultad de Ciencias, Universidad del Pais Vasco/EHU, Bilbao, E-48080, Spain). Topics in Catalysis, 16/17(1-4), 101-106 (English) **2001**. CODEN: TOCAFI. ISSN: 1022-5528. Publisher: Kluwer Academic/Plenum Publishers.

AB **Catalytic** activity of 3-way **catalysts** composed of 2 Pt **catalysts** supported on 1 high and 1 low surface area Ce0.68Zr0.32O2 mixed oxide was studied. **Catalyst** behavior was studied with fresh and thermally-aged **catalysts**, and correlated to textural and Pt dispersion changes. Results showed the **catalyst** with the highest surface area was not necessarily the **catalyst** which had the best performance as a 3-way **catalyst**. The different behavior of **catalysts** was mainly attributed to differences in Pt dispersion and/or reducibility of the samples, both related to the Pt/support interaction.

IT **213131-04-5**, Cerium zirconium oxide (Ce0.68Zr0.32O2)
(platinum supported on; temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

RN 213131-04-5 HCA

CN Cerium zirconium oxide (Ce0.68Zr0.32O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	2	17778-80-2
Zr	0.32	7440-67-7
Ce	0.68	7440-45-1

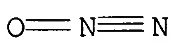
IT **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes **10102-44-0**, **Nitrogen dioxide**, processes
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

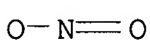
RN 10024-97-2 HCA

CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 10102-44-0 HCA

CN Nitrogen oxide (NO2) (8CI, 9CI) (CA INDEX NAME)



IT **10102-43-9**, Nitric oxide, processes
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

RN 10102-43-9 HCA

CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

IT **7782-44-7**, Oxygen, reactions
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

O=O

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 66, 67
ST three way **catalyst** performance exhaust gas treatment; platinum supported three way **catalyst**; cerium zirconium mixed oxide platinum supported three way **catalyst**
IT Exhaust gases (engine)
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT Hydrocarbons, processes
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT **Catalysts**
(three-way; temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT 7440-06-4, Platinum, uses
(cerium/zirconium mixed oxide supported; temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT **213131-04-5**, Cerium zirconium oxide (Ce0.68Zr0.32O2)
(platinum supported on; temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT 124-38-9, Carbon dioxide, processes 7664-41-7, Ammonia, processes **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes **10102-44-0**, **Nitrogen dioxide**, processes
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)
IT 115-07-1, Propene, processes 630-08-0, Carbon monoxide, processes **10102-43-9**, Nitric oxide, processes
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg.

platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

IT **7782-44-7**, Oxygen, reactions
(temp., platinum dispersion, sample reducibility, and aging effect on performance of three-way **catalyst** contg. platinum supported on high- and low-surface area cerium/zirconium mixed oxides)

L37 ANSWER 11 OF 22 HCA COPYRIGHT 2006 ACS on STN
136:11900 Procedure for the selective electrochemical oxidation of organic compounds. Kuehnle, Adolf; Duda, Mark; Stochniol, Guido; Van Berkel, Frans P. F.; Schipper, Gerard S. (Creavis Gesellschaft fuer Technologie und Innovation m.b.H., Germany). Ger. Offen. DE 10026941 A1 **20011206**, 12 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10026941 20000530.

AB The invention describes a procedure for the oxidn. of org. compds. in an electrochem. cell consisting of an anode, a cathode and O-conducting solid electrolyte. The org. compds. are oxidized at the anode, contg. a mixt. of an elec. conductive material and a mixed oxide A1BmX7nXo8X9pX10qX11rX12sOt with A, B = element of the 1, 2 and/or 5 main group and/or 4, 5, 6, 7, 8 groups. The elements in the mixed oxide are as follow, X7 = V, Nb, CR, W, TA, Ga and/or Ce, X8 = Li, Na, K, Rb, Cs, Be, mg, Ca, SR and/or Ba, X9 = La, Ce, Pr, Nd, Pm, Sm, EU, Gd, Tb, Dy, Ho, it, TM, Yb, Lu, Cu, Ag, Pd and/or Pt, X10 = Fe, Co, Ni and/or Zn, X11 = SN, Pb, Sb and/or, X12 = Ti, Zr, Si and/or Al, whereby 1 = 0,001 to 0,01 and 1 + o .gtoreq. 0,005. Oxygen- or **N2O**-contg. gas is present at the cathode.

IT **7727-37-9**, Nitrogen, uses
(medium; procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)

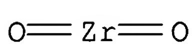
RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

IT **1314-23-4**, **Zirconium dioxide**, uses
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)

RN 1314-23-4 HCA

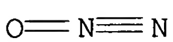
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3, Cerium dioxide**, uses
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)
RN 1306-38-3 HCA
CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

IT **7782-44-7**, Oxygen, uses **10024-97-2**, Nitrogen oxide **n2o**, uses
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

RN 10024-97-2 HCA
CN Nitrogen oxide (N_2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C25B003-02
ICS C25B011-04; H01B001-00
CC 72-4 (Electrochemistry)
Section cross-reference(s): 23, 47
IT **7727-37-9**, Nitrogen, uses
(medium; procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)
IT 1305-78-8, Calcium oxide, uses 1312-81-8, Lanthanum sesquioxide **1314-23-4, Zirconium dioxide**, uses 1314-36-9, Yttrium sesquioxide, uses 1314-37-0, Ytterbium sesquioxide 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 12060-08-1, Scandium sesquioxide 12064-62-9, Gadolinium sesquioxide
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)
IT 98-55-5, p-Menth-1-en-8-ol **1306-38-3, Cerium dioxide**, uses 1313-27-5, Molybdenum trioxide, uses 7440-06-4, Platinum, uses 7440-57-5, Gold, uses 8000-41-7, Terpineol 9004-57-3, Ethyl cellulose 12054-85-2 32480-35-6, Molybdenum nitrate 181061-22-3, Cobalt iron lanthanum strontium oxide co0.2fe0.8la0.6sr0.2o3 376646-02-5
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)

IT **7782-44-7**, Oxygen, uses **10024-97-2**, Nitrogen oxide **n2o**, uses
(procedure and electrolytic cell for selective electrochem. oxidn. of org. compds.)

L37 ANSWER 12 OF 22 HCA COPYRIGHT 2006 ACS on STN
135:295672 Electronic and Chemical Properties of Ce0.8Zr0.2O2(111) Surfaces: Photoemission, XANES, Density-Functional, and **NO2** Adsorption Studies. Liu, Gang; Rodriguez, Jose A.; Hrbek, Jan; Dvorak, Joseph; Peden, Charles H. F. (Chemistry Department, Brookhaven National Laboratory, Upton, NY, 11973, USA). Journal of Physical Chemistry B, 105(32), 7762-7770 (English) **2001**. CODEN: JPCBFK. ISSN: 1089-5647. Publisher: American Chemical Society.

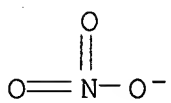
AB Synchrotron-based high-resoln. photoemission, conventional x-ray (Mg K.alpha.) photoemission (XPS), x-ray absorption near-edge spectroscopy (XANES), and 1st-principles d.-functional calcns. have been used to study the electronic properties of a Ce0.8Zr0.2O2 mixed-metal oxide. The results of d.-functional calcns. show that the band gap in bulk Ce0.8Zr0.2O2 is .apprx.0.6 eV smaller than that in bulk CeO2, with the Zr atoms in the mixed-metal oxide showing smaller pos. charges than the cations in ZrO2 or CeO2. When present in a lattice of CeO2, the Zr atoms are forced to adopt larger metal-O distances than in ZrO2, leading to a redn. in the oxidn. state of this element. Due to nonequivalent Zr-O distances, at least 3 different types of O atoms are found in the Ce0.8Zr0.2O2 system. Oxygen K-edge XANES spectra for Ce1-xZrxO2 (x = 0, 0.1, 0.2, 0.3, and 1) compds. show a distinctive line shape for the mixed-metal oxides that cannot be attributed to a sum of CeO2 and ZrO2 features, supporting the idea that the O atoms in Ce1-xZrxO2 are in a special chem. environment. XPS Ce 3d core-level spectra show Ce3+ cations even after prolonged oxidn. with **O gas**, which may be related to the relative stability of O vacancy defects upon incorporation of zirconia into ceria. The interaction of **NO2** gas with Ce0.8Zr0.2O2-x(111)-, CeO2-x(111)-, and Zr(Y)**O2**-x(111)-reduced surfaces was examd. Ne+ ion sputtering was used to generate substantial concns. of Ce3+, Zr2+, and Zr0 centers on the oxide surfaces. On CeO2-x(111), NO3, **NO2**, and N upon adsorption of **NO2** were obsd. but, only **NO2** and N were detected after adsorption of **NO2** on Ce0.8Zr0.2O2-x(111) and Zr(Y) **O2**-x(111). Adsorption of **NO2** induced an increase in the oxidn. state of the metal cations (Ce3+ .fwdarw. Ce4+; Zr0 .fwdarw. Zr2+). The **NOx** species desorbed from the oxides at 400-800 K, leaving N adatoms on the surfaces. The effects of Zr on the electronic and chem. properties of ceria are discussed and compared to those of other common dopant agents (Ca, Ti, and Cu).

IT **7727-37-9**, Nitrogen, formation (nonpreparative)

14797-55-8, Nitrato, formation (nonpreparative)
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)

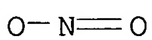
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 14797-55-8 HCA
CN Nitrate (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT **10102-44-0**, **Nitrogen dioxide**, processes
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)

RN 10102-44-0 HCA
CN Nitrogen oxide (NO2) (8CI, 9CI) (CA INDEX NAME)



IT **140418-72-0**, Cerium zirconium oxide (Ce0.7Zr0.3O2)
140418-73-1, Cerium zirconium oxide (Ce0.8Zr0.2O2)
140418-74-2, Cerium zirconium oxide (Ce0.9Zr0.1O2)
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)

RN 140418-72-0 HCA
CN Cerium zirconium oxide (Ce0.7Zr0.3O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.3	7440-67-7
Ce	0.7	7440-45-1

RN 140418-73-1 HCA
CN Cerium zirconium oxide (Ce0.8Zr0.2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.2	7440-67-7
Ce	0.8	7440-45-1

RN 140418-74-2 HCA
CN Cerium zirconium oxide (Ce0.9Zr0.1O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.1	7440-67-7
Ce	0.9	7440-45-1

CC 73-6 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 75, 76
IT Adsorption
Photoemission
X-ray photoemission
XANES spectroscopy
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)
IT **7727-37-9**, Nitrogen, formation (nonpreparative)
14797-55-8, Nitrato, formation (nonpreparative)
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)
IT **10102-44-0, Nitrogen dioxide**, processes
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)
IT **140418-72-0**, Cerium zirconium oxide (Ce0.7Zr0.3O2)
140418-73-1, Cerium zirconium oxide (Ce0.8Zr0.2O2)
140418-74-2, Cerium zirconium oxide (Ce0.9Zr0.1O2)
(electronic and chem. properties of Ce0.8Zr0.2O2(111) surfaces: photoemission, XANES, d.-functional, and **NO2** adsorption studies)

L37 ANSWER 13 OF 22 HCA COPYRIGHT 2006 ACS on STN
135:141458 **Catalytic N2O** decomposition in a model tail gas from nitric acid plants. Xu, Xiaoding; Perez-Ramirez, Javier; Mul, Guido; Vaccaro, Antonio R.; Kapteijn, Freek; Moulijn,

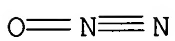
Jacob A. (Section Industrial Catalysis, Delft University of Technology, Delft, 2623, Neth.). Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry, 46(1), 85-87 (English) **2001**. CODEN: PSADFZ. ISSN: 1521-4648. Publisher: American Chemical Society, Division of Fuel Chemistry.

AB Detg. of lowest possible temp. for the direct **catalytic** decompn. of **N2O** in simulated tail-gases from nitric acid plants is studied. A large no. of promising **catalysts** were prepd., including zeolite-based, oxide supported, and mixed oxides derived from hydrotalcite like materials. Their **catalytic** performances were evaluated in a 6-flow reactor using a model tail-gas compn. under representative conditions. The individual and combined effects of **O2**, H2O, and NO on **N2O** conversion are studied.

IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(**catalytic N2O** decompn. in model tail gas from nitric acid plants)

RN 10024-97-2 HCA

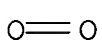
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7**, Oxygen, uses
(**catalytic N2O** decompn. in model tail gas from nitric acid plants in relation to)

RN 7782-44-7 HCA

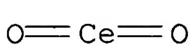
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, **Cerium oxide**, uses
(support; **catalytic N2O** decompn. in model tail gas from nitric acid plants)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)



CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST **catalytic** redn **nitrogen** oxide flue **gas** ; nitric acid manufg flue gas **catalytic** treatment; zeolite based **catalyst** redn **nitrogen** oxide flue **gas**; oxide supported **catalyst** redn **nitrogen** oxide flue **gas**; **catalyst** mixed

oxide redn **nitrogen** oxide flue **gas**
IT Ultrastable Y zeolites
(HY; **catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT Reduction **catalysts**
(**catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT Zeolite ZSM-5
(iron-, rhodium-, and palladium-exchanged; **catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT Flue gases
(nitric acid manufg.; **catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT Zeolite HY
(ultrastable; **catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 164059-54-5, Cerium cobalt **zirconium oxide** 351534-31-1 351534-32-2, Aluminum cobalt rhodium oxide
(**catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT 7697-37-2P, Nitric acid, preparation
(**catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(**catalytic N2O** decompn. in model tail gas from nitric acid plants)
IT 7732-18-5, Water, uses **7782-44-7**, Oxygen, uses 10102-43-9, Nitrogen oxide (NO), uses
(**catalytic N2O** decompn. in model tail gas from nitric acid plants in relation to)
IT **1306-38-3, Cerium oxide**, uses 1314-13-2, Zinc oxide, uses 1344-28-1, Aluminum oxide, uses
(support; **catalytic N2O** decompn. in model tail gas from nitric acid plants)

L37 ANSWER 14 OF 22 HCA COPYRIGHT 2006 ACS on STN
134:371155 **Catalyst** for decomposing nitrous oxide. Jurczyk, Krzysztof (Zaklady Chemiczne "alwernia" S.A., Pol.). PCT Int. Appl. WO 2001036090 A1 **20010525**, 29 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT,

SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-PL82 20001115. PRIORITY: PL 1999-336610 19991116.

AB **Catalyst** is a mixed oxide system prepd. as a result of hydrothermal treatment of a gelatine mixt. obtained by pptn. of hydroxide metal forms from solns. of their salts, which system is thermally activated just prior to its use, and described with mol. formula XxYyO(2x+1,5y), in which X = system of bivalent metal cations, Y = system of trivalent and/or tetravalent metal cations, or a trivalent or tetravalent metal cation, O = an oxygen atom, x and y take such values, that a ratio x to y is in the range from 6 to 9, and the no. of oxygen atoms in the **catalyst** mol. equals to the sum of the double of the combined no. of divalent and tetravalent metal atoms, multiplied by 1.5. The **catalyst** of the invention may be used successfully in reactions of decompn. of **nitrogen monoxide** to **oxygen gas** and **nitrogen gas** in plants for producing nitric acid, adipic acid, in elec. power stations and heat-generating plants, in automotive vehicles of any art, in ozone-producing plants, in plants for combustion of contaminants and biomass, as well as in any reactions, in which decompn. of **N2O** to elements is required.

IT **1314-23-4, Zirconium oxide**, uses
11129-18-3, Cerium oxide
(**catalyst** for decompg. nitrous oxide waste gases)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

RN 11129-18-3 HCA

CN Cerium oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **10024-97-2**, Nitrous oxide, processes
(**catalyst** for decompg. nitrous oxide waste gases)

RN 10024-97-2 HCA

CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)

O═N≡N

IC ICM B01J023-00
ICS B01D053-86; B01J037-03

CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST **catalyst** decompn nitrous oxide waste gas

IT Combustion gases
Decomposition **catalysts**

Flue gases
(**catalyst** for decompg. nitrous oxide waste gases)
IT 1303-86-2, Boron oxide, uses 1304-28-5, Barium oxide, uses 1304-56-9, Beryllium oxide, uses 1304-76-3, Bismuth oxide, uses 1305-78-8, Calcium oxide, uses 1306-19-0, Cadmium oxide, uses 1309-48-4, Magnesium oxide, uses 1310-53-8, Germanium oxide, uses 1312-43-2, Indium oxide 1312-81-8, Lanthanum oxide 1313-96-8, Niobium oxide 1313-97-9, Neodymium oxide 1313-99-1, Nickel oxide, uses 1314-08-5, Palladium oxide PdO 1314-11-0, Strontium oxide, uses 1314-13-2, Zinc oxide, uses **1314-23-4**, **Zirconium oxide**, uses 1327-33-9, Antimony oxide 1332-29-2, Tin oxide 1332-37-2, Iron oxide, uses 1335-25-7, Lead oxide 1344-28-1, Aluminum oxide, uses 1344-43-0, Manganese oxide, uses 1344-70-3, Copper oxide 7631-86-9, Silicon oxide SiO2, uses 11104-61-3, Cobalt oxide 11113-84-1, Ruthenium oxide 11118-57-3, Chromium oxide **11129-18-3**, **Cerium oxide** 11129-60-5, Manganese oxide 11129-89-8, Platinum oxide 12024-21-4, Gallium oxide 12036-32-7, Praseodymium oxide 12064-62-9, Gadolinium oxide 12645-46-4D, Iridium oxide, carbonate, sulfate nitrate, chloride or acetate salts of 12651-21-7, Thallium oxide 12680-36-3, Rhodium oxide 13463-67-7, Titanium oxide, uses 339525-28-9 339525-29-0, Aluminum cobalt magnesium oxide (Al2Co7Mg11O39)
(**catalyst** for decompg. nitrous oxide waste gases)
IT **10024-97-2**, Nitrous oxide, processes
(**catalyst** for decompg. nitrous oxide waste gases)
IT 124-04-9, Adipic acid, miscellaneous
(**catalyst** for decompg. nitrous oxide waste gases from prodn. of adipic acid)
IT 7697-37-2, Nitric acid, miscellaneous
(**catalyst** for decompg. nitrous oxide waste gases from prodn. of nitric acid)
IT 497-19-8, Sodium carbonate, reactions
(used in prodn. of decompn. **catalyst** for nitrous oxide removal from waste gases)
IT 1310-58-3, Potassium hydroxide, reactions 1310-73-2, Sodium hydroxide, reactions 1336-21-6, Ammonium hydroxide
(used to ppt. hydroxide metal forms in synthesis of decompn. **catalyst** for nitrous oxide removal from waste gases)

L37 ANSWER 15 OF 22 HCA COPYRIGHT 2006 ACS on STN
134:328211 Process and **catalysts** for synthesizing aliphatic, cyclic and aromatic alkanolamines and alkyleneamines. Bhasin, Madan Mohan; King, Stephen Wayne (Union Carbide Chemicals & Plastics Technology Corporation, USA). PCT Int. Appl. WO 2001032600 A1 **20010510**, 31 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,

KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US29681 20001027. PRIORITY: US 1999-430634 19991029.

AB A process for synthesizing alkanolamines and/or alkyleneamines by reacting either an alkane, an alkene, or both with a source of oxygen and a source of nitrogen and, optionally, addnl. hydrogen to convert the alkane and/or alkene by selective partial oxidative amination to at least one of the desired end products (e.g., triethanolamine), using a regenerable **catalyst**, is described.

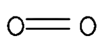
IT **7727-37-9D**, Nitrogen, oxides, reactions **7782-44-7**, Oxygen, reactions **10024-97-2**, Nitrous oxide, reactions
(process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

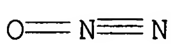
RN 7782-44-7 HCA

CN Oxygen (8CI, 9CI) (CA INDEX NAME)



RN 10024-97-2 HCA

CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(support; **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

IC ICM C07C209-02
ICS C07C213-00; B01J023-16; B01J023-70
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48, 67
ST alkanolamine prepn; alkyleneamine prepn; triethanolamine prepn; oxidative amination **catalyst** alkanolamine prepn
IT Alcohols, reactions
Amines, reactions
(Process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Molecular sieves
(aluminophosphate, supports; **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Alcohols, preparation
(amino; process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Rare earth oxides
(**catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Amines, preparation
(diamines; process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Dehydrogenation **catalysts**
Hydrogenation **catalysts**
(for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Amination **catalysts**
(oxidative; for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT Alkanes, reactions
Alkenes, reactions
(process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT MCM zeolites
Zeolites (synthetic), uses
(supports; **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)
IT 1304-28-5, Barium oxide, uses 1304-76-3, Dibismuth trioxide, uses 1306-19-0, Cadmium oxide, uses 1308-06-1, Tricobalt tetraoxide 1309-37-1, Ferric oxide, uses 1309-60-0, Lead oxide 1313-13-9, Manganese dioxide, uses 1313-27-5, Molybdenum trioxide, uses 1313-99-1, Nickel oxide, uses 1314-18-7, Strontium dioxide 1314-35-8, Tungsten trioxide, uses 1314-62-1, Divanadium

pentaoxide, uses 1314-68-7, Dirhenium heptaoxide 1317-34-6, Dimanganese trioxide 1317-35-7, Trimanganese tetraoxide 1317-38-0, Cupric oxide, uses 1317-39-1, Cuprous oxide, uses 1345-25-1, Ferrous oxide, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 12036-21-4, Divanadium tetraoxide 12036-22-5, Tungsten dioxide 18282-10-5, Tin dioxide 20816-12-0, Osmium tetraoxide
(**catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

IT 102-71-6P, Triethanolamine, preparation 111-42-2P, Diethanolamine, preparation 141-43-5P, Ethanolamine, preparation 12602-25-4P, Ethenediamine
(process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

IT 302-01-2, Hydrazine, reactions 1333-74-0, Hydrogen, reactions 7664-41-7, Ammonia, reactions **7727-37-9D**, Nitrogen, oxides, reactions 7732-18-5, Water, reactions **7782-44-7**, Oxygen, reactions **10024-97-2**, Nitrous oxide, reactions 10028-15-6, Ozone, reactions
(process and **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

IT 409-21-2, Silicon carbide, uses **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(support; **catalysts** for synthesizing aliph. and cyclic and arom. alkanolamines and alkyleneamines)

L37 ANSWER 16 OF 22 HCA COPYRIGHT 2006 ACS on STN

133:154610 Room temperature decomposition of **N2O** in the presence of **gaseous oxygen** on prereduced Rh supported **catalysts**. Centi, Gabriele; Dall'Olio, Laura; Perathoner, Siglinda (Department of Industrial Chemistry and Materials Engineering, University of Messina, Messina, 98166, Italy). Catalysis Letters, 67(2-4), 107-112 (English) **2000**. CODEN: CALEER. ISSN: 1011-372X. Publisher: Baltzer Science Publishers.

AB The room temp. decompn. of **N2O** over prereduced Rh-based **catalysts** (Rh supported on ceria, zirconia, and titania-alumina) was studied as a function of the oxygen content in the feed. Results indicate that Rh supported on titania-alumina shows lower degree of reaction inhibition by **gaseous oxygen**, which is attributed to the role of the metal particle-support interface region in the reaction. The effect of Rh loading and of the reaction temp. are consistent with the

hypothesis.

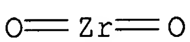
IT **1306-38-3, Cerium oxide (CeO2**
), uses **1314-23-4, Zirconium oxide** (
ZrO2), uses
(**catalyst** support; room temp. decompn. of **N2O**
in presence of **gaseous oxygen** on prereduced
alumina-titania supported Rh **catalysts**)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

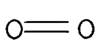
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7**, Oxygen, reactions
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania
supported Rh **catalysts**)

RN 7782-44-7 HCA

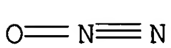
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania
supported Rh **catalysts**)

RN 10024-97-2 HCA

CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

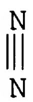
ST nitrogen oxide room temp decompn oxygen prereduced rhodium
catalyst; waste **gas nitrogen** oxide
removal prereduced rhodium **catalyst**

IT Oxidation **catalysts**
Waste gases
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania

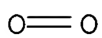
supported Rh **catalysts**)
IT **1306-38-3, Cerium oxide** (**CeO2**
), uses **1314-23-4, Zirconium oxide** (
ZrO2), uses 1344-28-1, Aluminum oxide (Al2O3), uses
13463-67-7, Titanium oxide (TiO2), uses
(**catalyst** support; room temp. decompn. of **N2O**
in presence of **gaseous oxygen** on prereduced
alumina-titania supported Rh **catalysts**)
IT 7440-16-6, Rhodium, uses
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania
supported Rh **catalysts**)
IT **7782-44-7**, Oxygen, reactions
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania
supported Rh **catalysts**)
IT **10024-97-2**, Nitrogen oxide (**N2O**), processes
(room temp. decompn. of **N2O** in presence of
gaseous oxygen on prereduced alumina-titania
supported Rh **catalysts**)

L37 ANSWER 17 OF 22 HCA COPYRIGHT 2006 ACS on STN
130:172057 Decomposition of **N2O** on Rh/**CeO2**/
ZrO2 composite **catalyst**. Imamura, Seiichiro;
Hamada, Rei; Saito, Yoshio; Hashimoto, Keiji; Jindai, Hitoshi
(Faculty of Engineering and Design, Kyoto Institute of Technology,
Sakyo-ku, Matsugasaki, Kyoto, 606, Japan). Journal of Molecular
Catalysis A: Chemical, 139(1), 55-62 (English) **1999**.
CODEN: JMCCF2. ISSN: 1381-1169. Publisher: Elsevier Science B.V..
AB **N2O** was decompd. over Rh supported on **CeO2**/
ZrO2 composite oxide, and the effects of the oxide compn.
and its calcination temp. on **catalytic** performance of Rh
were studied. **CeO2** was fragile against high temp.
calcination, while addn. of Zr remarkably increased its thermal
stability to retain high surface area even at a 900.degree.
calcination temp. Rh was supported on these oxides and was calcined
at 550.degree.. The Rh supported on the composite oxide with a
Ce/Zr molar ratio of 7:3 which had been calcined at 900.degree.
exhibited the highest activity. TEM and ESCA analyses showed the Rh
strongly interacted with the oxide; it was possible that a part of
Rh even dissolved into its bulk. Rh exposed to the surface of the
composite oxide in a highly dispersed state exhibited the high
catalytic activity; however, when the calcination temp. of
the composite oxide (Ce/Zr molar ratio of 7:3) was increased to
1200.degree., its surface area decreased remarkably and the
supported Rh was present in an aggregated state. Rh in this state
had only low **catalytic** activity despite its high surface
concn.

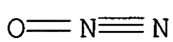
IT **7727-37-9**, Nitrogen, processes **7782-44-7**, Oxygen, processes
(oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)



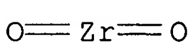
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **10024-97-2**, Nitrous oxide, processes
(oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **1314-23-4**, Zirconia, uses
(rhodium supported by composite oxide of ceria and; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses
(rhodium supported by composite oxide of zirconia and; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 66, 67
ST nitrous oxide decompn rhodium ceria zirconia composite **catalyst**
IT Decomposition
(**catalytic**; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT Interfacial structure
Surface area
(oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT 7440-16-6, Rhodium, uses
(ceria/zirconia composite oxide-supported; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT **7727-37-9**, Nitrogen, processes **7782-44-7**, Oxygen, processes
(oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT **10024-97-2**, Nitrous oxide, processes
(oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT **1314-23-4**, Zirconia, uses
(rhodium supported by composite oxide of ceria and; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)
IT **1306-38-3**, Ceria, uses
(rhodium supported by composite oxide of zirconia and; oxide compn. and calcination temp. effect on **catalytic** activity and decompn. of nitrous oxide by ceria/zirconia composite oxide-supported rhodium)

L37 ANSWER 18 OF 22 HCA COPYRIGHT 2006 ACS on STN
129:112626 Two reaction paths at different temperatures in the reduction of **nitrogen monoxide** with hydrogen over supported palladium **catalysts**. Ueda, Atsushi; Nakao, Takayuki; Azuma, Masashi; Kobayashi, Tetsuhiko (Osaka National Research Institute, AIST, Osaka, 563, Japan). Chemistry Letters (7), 595-596 (English) **1998**. CODEN: CMLTAG. ISSN:

0366-7022. Publisher: Chemical Society of Japan.

AB Two conversion maxima at 373 K and 573 K were found to appear in the NO redn. with H_2 over metal oxides-supported Pd, when **O_2** is present in the reactant stream. At the lower temp., NO directly reacts with H_2, but primarily produced NO_2 on the **catalyst** can successively react with H_2 in preference to the simple combustion of H_2 at the higher temp.

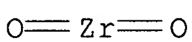
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(**catalyst** support; temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)

RN 1306-38-3 HCA

CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



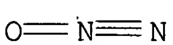
IT **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)

RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 10024-97-2 HCA

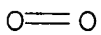
CN Nitrogen oxide (N_2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7**, Oxygen, reactions
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)

RN 7782-44-7 HCA

CN Oxygen (8CI, 9CI) (CA INDEX NAME)



CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST exhaust **gas nitrogen** oxide **catalytic** redn; hydrogen redn exhaust **gas nitrogen** oxide; metal oxide supported palladium platinum **catalyst**
IT Oxides (inorganic), uses
(**catalyst** support; temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT Reduction **catalysts**
(metal oxide-supported palladium or platinum; temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT Exhaust gases (engine)
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT 1304-28-5, Barium oxide, uses **1306-38-3**, Ceria, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthanum oxide 1314-11-0, Strontium oxide, uses **1314-23-4**, Zirconia, uses 1317-34-6, Manganese oxide (Mn_2O_3) 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 18282-10-5, Tin oxide (SnO_2)
(**catalyst** support; temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses
(metal oxide-supported; temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT **7727-37-9**, Nitrogen, processes **10024-97-2**, Nitrous oxide, processes
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)
IT 10102-43-9, Nitric oxide, processes 11104-93-1, Nitrogen oxide, processes
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or

platinum **catalyst** in presence of oxygen)

IT 1333-74-0, Hydrogen, reactions **7782-44-7**, Oxygen, reactions
(temp. effect on exhaust **gas nitrogen** oxide redn. by hydrogen over metal oxide-supported palladium or platinum **catalyst** in presence of oxygen)

L37 ANSWER 19 OF 22 HCA COPYRIGHT 2006 ACS on STN

127:336062 **Catalysts** for removing **nitrogen oxides** from exhaust **gases** under excess **oxygen.** Kaneko, Hiroaki; Suga, Katsuo; Kamijo, Motohisa; Ito, Hidetoshi (Nissan Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09253496 A2 **19970930** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-66483 19960322.

AB The title **catalysts** comprises a monolithic honeycomb support loaded with (a) Pt, Pd, or Rd, (b) a composite oxide of formula: (La1-xAx)1-.alpha.BO1-.delta. (x 0-1; .alpha. = 0-0.2; .delta. = 0-1; A = Ba, K; B = Fe, Co, Ni, Mn), and (c) a 2nd composite oxide of formula: CeyZr1-yO2 (y = 0-1). **NOx** is removed from exhaust gases by contacting with a 1st **catalyst** contg. Cu-loaded zeolites, then with the above **catalysts.**

IT **65453-23-8P**, Cerium zirconium oxide
(**catalysts**; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)

RN 65453-23-8 HCA

CN Cerium zirconium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Zr	x	7440-67-7
Ce	x	7440-45-1

IC ICM B01J023-89
ICS B01D053-86; B01D053-94; B01J021-16; B01J023-656

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST exhaust **gas nitrogen oxide** removal **catalyst**; cerium zirconium oxide oxidn **catalyst**

IT Zeolites (synthetic), uses
(**catalyst** supports for copper; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)

IT Absorbents
(for **nitrogen oxide**; oxidn. **catalysts** and method for removal of **nitrogen oxide** from

exhaust **gases** under excess **oxygen**)
IT Exhaust gases (engine)
Oxidation **catalysts**
(oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 51845-75-1P, Barium iron lanthanum oxide 56258-25-4P, Barium cobalt lanthanum oxide 59977-33-2P, Barium lanthanum nickel oxide 147551-34-6P, Barium lanthanum manganese oxide 183136-64-3P, Cobalt lanthanum potassium oxide
(absorbers of **nitrogen oxide**, **catalysts** contg.; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 1302-88-1, Cordierite
(**catalyst** supports; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 7440-50-8, Copper, uses
(**catalysts**, supported on zeolite; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
(**catalysts**; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT **65453-23-8P**, Cerium zirconium oxide
(**catalysts**; oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 198083-36-2P, Barium cobalt lanthanum potassium oxide
(oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)
IT 11104-93-1, **Nitrogen oxide**, processes
(oxidn. **catalysts** and method for removal of **nitrogen oxide** from exhaust **gases** under excess **oxygen**)

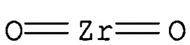
L37 ANSWER 20 OF 22 HCA COPYRIGHT 2006 ACS on STN
127:24144 Temperature-programmed desorption study of NO and CO2 over **CeO2** and **ZrO2**. Luo, Meng-fei; Zhong, Yi-jun; Zhu, Bo; Yuan, Xian-xin; Zheng, Xiao-ming (Institute of Catalysis, Hangzhou University, Hangzhou, 310028, Peop. Rep. China). Applied Surface Science, 115(2), 185-189 (English) **1997**. CODEN: ASUSEE. ISSN: 0169-4332. Publisher: Elsevier.

AB The adsorptive properties of **CeO_2** and **ZrO_2** were studied with respect to NO and CO_2 probe mols. using temp.-programmed desorption (TPD). Four species were detected during thermal desorption of NO adsorbed on **CeO_2** and **ZrO_2**, namely, NO (m/e = 30), **N_2** (m/e = 28), **N_2O** (m/e = 44) and **O_2** (m/e = 32). The TPD profile suggest that there are two types of adsorbed states of NO on the **CeO_2** and **ZrO_2** surfaces, one is the weakly adsorbed NO which desorbs at about 170.degree.C and the other is the more strongly adsorbed NO which desorbs at about 450.degree.C. The adsorbed NO undergoes extensive decompn. to form **N_2**, **N_2O** and **O_2** during thermal desorption. The TPD spectrum obtained after CO_2 adsorption on **CeO_2** are composed of CO_2 desorption at 140.degree.C and 440.degree.C. These peaks are assigned to monodentate and bidentate carbonate species in the adsorbed states. After the successive adsorption of NO and CO_2 on the **CeO_2** and **ZrO_2** surfaces, the intensity of CO_2 desorption peak in TPD is weaker than that in the case of single of CO_2. However, the intensity of NO desorption is almost the same as in the case of single NO adsorption. This indicated that the preadsorption of NO on cation sites of oxide surfaces affected the surrounding surface oxygen sites and blocked the CO_2 adsorption. Furthermore, this also indicates that the interaction of the oxide surface with NO is much stronger than that with CO_2.

IT **1306-38-3, Cerium oxide**, properties
1314-23-4, Zirconium oxide, properties
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)

RN 1306-38-3 HCA
CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

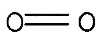
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



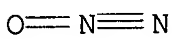
IT **7727-37-9**, Nitrogen, formation (nonpreparative)
7782-44-7, Oxygen, formation (nonpreparative)
10024-97-2, Dinitrogen oxide, formation (nonpreparative)
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



RN 10024-97-2 HCA
CN Nitrogen oxide (N_2O) (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 59, 67
ST temp programmed desorption nitric oxide decompn; **cerium oxide zirconium oxide** decompn **catalyst**; carbon dioxide nitric oxide thermal decompn
IT Decomposition
(of NO and CO_2 over **CeO_2** and **ZrO_2** to form **N_2**, **O_2**, and **N_2O**)
IT Adsorbed substances
Decomposition **catalysts**
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)
IT Desorption
(thermal; thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)
IT **1306-38-3, Cerium oxide**, properties
1314-23-4, Zirconium oxide, properties
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)
IT **7727-37-9**, Nitrogen, formation (nonpreparative)
7782-44-7, Oxygen, formation (nonpreparative)
10024-97-2, Dinitrogen oxide, formation (nonpreparative)
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)
IT 124-38-9, Carbon dioxide, properties 10102-43-9, Nitric oxide, properties
(thermal desorption of NO and CO_2 over **CeO_2** and **ZrO_2 catalysts**)

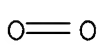
L37 ANSWER 21 OF 22 HCA COPYRIGHT 2006 ACS on STN
118:239913 Preparation of three-way **catalyst** exhaust gas treatment. Tanaka, Hirohisa; Tsuboi, Hidefumi; Matsumoto, Shinichi; Kimura, Mareo; Sobukawa, Hideo; Ozawa, Masakumi (Daihatsu Motor Co., Ltd., Japan; Toyota Chuo Kenkyusho K. K.). Eur. Pat. Appl. EP 525677 A1 **19930203**, 19 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1992-112717 19920724. PRIORITY: JP 1991-212943 19910729; JP 1992-76175 19920226.

AB Three-way **catalysts**, with activity at >900.degree. and high efficiency for **NOx** removal, are comprised of a perovskite compd. oxide with the general formula Ln1-xAxMO3, where Ln represents .gtoreq.1 rare earth metals excluding Ce, A represents Ce or .gtoreq.1 alk. earth metals, M represents .gtoreq.1 transition metals, and x is 0-1; a heat resistant oxide contg. Ce and Zr, or other rare earth metals excluding Ce; and a precious metal. Heat resistance of the **catalyst** is improved with the incorporation of the heat resistant oxide and **NOx** is improved by the incorporation of the precious metal. Low temp. **catalyst** performance is enhanced by using a double structure with a core of of a perovskite compd. oxide such as (La0.8Ce0.2)(Co0.4Fe0.6)O3 and an outer perovskite compd. oxide, in which a precious metal is dissolved in the solid, enclosing the core. The **catalyst** is suitable for removing CO, hydrocarbons, and **NOx** from exhaust gases.

IT **7727-37-9**, Nitrogen, miscellaneous **7782-44-7**, Oxygen, miscellaneous
(in exhaust gas, three-way **catalyst** treatment in presence of)

RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **10102-43-9, Nitrogen oxide** (NO), miscellaneous
(removal of, from exhaust gas, three-way **catalyst** for)

RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

N═O

IT 140418-73-1, Cerium zirconium oxide (Ce0.8Zr0.2O2)
(three-way **catalyst** contg., for exhaust gas treatment)
RN 140418-73-1 HCA
CN Cerium zirconium oxide (Ce0.8Zr0.2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Zr	0.2	7440-67-7
Ce	0.8	7440-45-1

IC ICM B01D053-36
ICS B01J023-89; B01J023-00
CC 59-3 (Air Pollution and Industrial Hygiene)
ST **catalyst** prepn exhaust gas treatment; exhaust gas treatment three way **catalyst**
IT Exhaust gases
(carbon monoxide and hydrocarbons and **nitrogen oxide** removal from, three-way **catalyst** for)
IT **Catalysts** and **Catalysis**
(three-way, for carbon monoxide and hydrocarbons and **nitrogen oxide** removal, from exhaust gases)
IT 124-38-9, Carbon dioxide, miscellaneous **7727-37-9**, Nitrogen, miscellaneous 7732-18-5, Water, miscellaneous **7782-44-7**, Oxygen, miscellaneous
(in exhaust gas, three-way **catalyst** treatment in presence of)
IT 115-07-1, 1-Propene, miscellaneous 630-08-0, Carbon monoxide, miscellaneous **10102-43-9**, **Nitrogen oxide** (NO), miscellaneous
(removal of, from exhaust gas, three-way **catalyst** for)
IT 7440-05-3, Palladium, uses 113152-13-9, Cerium cobalt lanthanum oxide (Ce0.2CoLa0.8O3) 114902-09-9, Cobalt iron lanthanum strontium oxide (Co0.4Fe0.6La0.8Sr0.2O3) **140418-73-1**, Cerium zirconium oxide (Ce0.8Zr0.2O2) 145003-23-2, Cobalt iron lanthanum strontium oxide (Co0.5Fe0.5La0.8Sr0.2O3) 147628-65-7, Cerium yttrium zirconium oxide (Ce0.65Y0.05Zr0.3O2) 147628-66-8, Cerium cobalt iron lanthanum oxide (Ce0.2Co0.4Fe0.6La0.8O3) 147628-67-9, Cerium yttrium zirconium oxide (Ce0.77Y0.03Zr0.2O2) 147628-68-0, Cerium cobalt iron lanthanum oxide (Ce0.1Co0.4Fe0.6La0.9O3) 147628-69-1
(three-way **catalyst** contg., for exhaust gas treatment)
IT 1306-38-3, Cerium oxide (CeO2), uses 1314-23-4, Zirconium oxide

(ZrO2), uses 1314-36-9, Yttrium oxide, uses 7782-61-8
10026-22-9, Cobalt nitrate hexahydrate 10042-76-9, Strontium
nitrate 10277-43-7, Lanthanum nitrate hexahydrate 10361-93-0,
Yttrium nitrate 13826-66-9 16454-60-7, Neodymium nitrate
hexahydrate 74418-77-2
(three-way **catalyst** prepn. with, for exhaust gas
treatment)

IT 7440-45-1, Cerium, uses 7440-67-7, Zirconium, uses
(three-way **catalyst** support contg., for exhaust gas
treatment)

IT 1344-28-1, .gamma.-Aluminum oxide, uses
(.gamma.-phase, three-way **catalyst** contg., for exhaust
gas treatment)

L37 ANSWER 22 OF 22 HCA COPYRIGHT 2006 ACS on STN

107:225516 Expansion of the spectral region of the radiation from
electronic-transition chemical lasers. Basov, N. G.; Gavrikov, V.
F.; Shcheglov, V. A. (Fiz. Inst. im. Lebedeva, Moscow, USSR).
Kvantovaya Elektronika (Moscow), 14(9), 1787-806 (Russian)
1987. CODEN: KVEKA3. ISSN: 0368-7147.

AB Possible expansion was analyzed of the spectral bandwidth of the
radiation from electronic-transition chem. lasers. Chem. excitation
processes are classified, basic kinetic schemes of donor-acceptor
lasers are discussed, the laser efficiency is estd. A novel class
of reactions is suggested which are a potential source of
electronically excited N mols. for short-wavelength chem. lasers.
Various types of chem. processes are discussed which proceed with
generation of singlet **O2**. A homol. series is suggested of
donor-acceptor pairs which are potentially suitable for the use in
transfer lasers (the spectral radiation bandwidth is 0.2-1 .mu.m).

IT **7727-37-9**, Nitrogen, uses and miscellaneous
7782-44-7, Oxygen, uses and miscellaneous **10024-97-2**
, Nitrous oxide, uses and miscellaneous **12014-74-3**,
Cerium monoxide 12036-01-0,
Zirconium monoxide
(chem. laser systems contg.)

RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA

CN Oxygen (8CI, 9CI) (CA INDEX NAME)

O═O

RN 10024-97-2 HCA
CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)

O═N≡N

RN 12014-74-3 HCA
CN Cerium oxide (CeO) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Ce═O

RN 12036-01-0 HCA
CN Zirconium oxide (ZrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O═Zr

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
IT 630-08-0, Carbon monoxide, uses and miscellaneous 1304-28-5, Barium oxide, uses and miscellaneous 1304-56-9, Beryllium oxide 1305-78-8, Calcium oxide, uses and miscellaneous 1307-96-6, Cobalt monoxide, uses and miscellaneous 1309-48-4, Magnesium oxide, uses and miscellaneous 1314-11-0, Strontium oxide, uses and miscellaneous 1314-87-0, Lead sulfide 1314-91-6, Lead telluride (PbTe) 1314-95-0, Tin monosulfide 1317-36-8, uses and miscellaneous 1345-25-1, Iron monoxide, uses and miscellaneous 2074-87-5, Cyanogen radical 2944-05-0, Carbon monosulfide **7727-37-9**, Nitrogen, uses and miscellaneous 7775-41-9, Silver fluoride **7782-44-7**, Oxygen, uses and miscellaneous 7789-24-4, Lithium fluoride, uses and miscellaneous **10024-97-2**, Nitrous oxide, uses and miscellaneous 10043-11-5, Boron mononitride, uses and miscellaneous 10097-28-6, Silicon monoxide 10102-43-9, Nitric oxide, uses and miscellaneous 10102-44-0, Nitrogen dioxide, uses and miscellaneous 11128-24-8, Silicon monofluoride 12006-60-9, AuSn **12014-74-3**, **Cerium monoxide** 12018-00-7, Chromium monoxide 12020-60-9, Europium monoxide 12025-32-0, Germanium monosulfide 12033-56-6, Nitrogen monosulfide 12033-59-9, Nitrogen monoselenide 12033-60-2, Silicon mononitride 12035-20-0, Neodymium monoxide 12035-82-4, Platinum monoxide 12035-88-0, Samarium monoxide 12035-90-4, Tantalum monoxide 12035-93-7, Thorium monoxide 12035-97-1, Uranium monoxide 12035-98-2, Vanadium monoxide

12035-99-3, Tungsten monoxide **12036-01-0, Zirconium monoxide** 12058-07-0, Molybdenum monoxide 12136-26-4, Indium monoxide 12137-20-1, Titanium monoxide 12190-75-9, Nitrogen monochloride 12211-00-6, Silicon monoselenide 12281-10-6, Holmium monoxide 12504-41-5, Silicon monosulfide 12505-77-0, Boron monoxide 12524-20-8, Barium monoiodide 12596-60-0, Triatomic nitrogen, uses and miscellaneous 13478-41-6, Copper monofluoride 13569-28-3, Zirconium monofluoride 13572-99-1, Germanium hydride (GeH) 13595-82-9, Aluminum monofluoride 13768-60-0, Boron monofluoride 13774-92-0, Imidogen 13783-64-7, Nickel monofluoride 13827-23-1, Bismuth monofluoride 13940-25-5, Tin hydride (SnH) 13943-44-7, Lanthanum monofluoride 13966-70-6, Barium monofluoride 13966-74-0, Tin monofluoride 13966-79-5, Chromium hydride (CrH) 13967-00-5, Barium hydride (BaD) 13967-06-1, Nitrogen monofluoride 13967-29-8, Nitrogen monobromide 13981-88-9 14017-33-5, Scandium monofluoride 14452-66-5, Phosphorus monoxide 14530-75-7, Yttrium monochloride 14721-16-5, Uranium monofluoride 14832-97-4, Barium monobromide 14832-99-6, Barium monochloride 14929-46-5, Germanium monofluoride 14953-28-7, Magnesium monofluoride 14986-72-2, Lead monofluoride 15117-61-0 15120-13-5, Arsenic monofluoride 15123-00-9, Imidogen-d 15194-77-1 16027-92-2, Phosphorus monofluoride 16674-18-3, Carbon monoselenide 17167-55-4, Phosphorus monochloride 17209-59-5, Samarium monofluoride 17655-42-4 17775-46-1, Scandium monochloride 18025-22-4, Titanium monofluoride 18933-08-9, Bismuth monoiodide 19952-12-6, Antimony monochloride 19961-29-6, Boron monobromide 20316-35-2, Tantalum monofluoride 20583-55-5, Boron monochloride 20619-16-3, Germanium monoxide 20654-98-2, Zinc monofluoride 21297-03-0, Nitrogen monoiodide 21590-54-5, Chromium hydride (CrD) 21651-19-4, Tin monoxide 25285-72-7, Antimony monofluoride 25583-20-4, Titanium mononitride 25658-42-8, Zirconium mononitride 25764-08-3, Cerium mononitride 41428-55-1, Iron monofluoride 51621-16-0, Tungsten monofluoride 59727-16-1, Phosphorus monobromide 59727-17-2, Arsenic monobromide 60388-18-3 67321-82-8, Vanadium monofluoride 82867-93-4
(chem. laser systems contg.)

=> d l38 1-22 cbib abs hitstr hitind

L38 ANSWER 1 OF 22 HCA
139:56983 Reactor for **nitrogen oxide** removal in lean condition for exhaust gas treatment. Kawamura, Tetsuo; Okumura, Kohei (Toyota Motor Corp., Japan; Toyota Central Research and Development Laboratories, Inc.). Jpn. Kokai Tokkyo Koho JP 2003181246 A2 20030702, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-389981 20011221.

AB The reactor comprises (1) a plate-type O-ion conductor having an anode in one face and a cathode in the other face which bears a basic substance and (2) a conductive wire elec. connecting the anode and the cathode so as to form a closed circuit. The O-ion conductor may be **CeO_2**-Y_2O_3, **CeO_2**-Gd_2O_3, **CeO_2**-**ZrO_2**, **ZrO_2**-Y_2O_3, Bi_2O_3-Y_2O_3, La_2O_3-SrO-Ga_2O_3-MgO, and/or BaO-In_2O_3 and the basic substance may be oxides or carbonates of transition metals, alkali metals and alk. earth metals. The reactor works as a **catalyst** for efficiently removing **NO_x** from an exhaust gas at a high temp. in lean air/fuel condition.

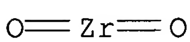
IT **1306-38-3D, Cerium oxide**, compd. with metal oxides **1314-23-4D, Zirconium oxide**, compd. with metal oxides
(oxygen ion conductor contg.; oxygen ion conductor-based reactor as **nitrogen oxide** removal **catalyst** for exhaust gas treatment)

RN 1306-38-3 HCA

CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-86
ICS B01J023-58; F01N003-08; F01N003-10

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST reactor exhaust **gas nitrogen oxide** removal; solid **oxygen** conductor exhaust **gas** treatment; **catalyst** exhaust **gas oxygen** conductor reactor

IT Alkali metal compounds
Alkaline earth compounds
Transition metal compounds
(carbonates, on cathode of reactor; oxygen ion conductor-based reactor as **nitrogen oxide** removal **catalyst** for exhaust gas treatment)

IT Transition metals, uses
(electrodes, on oxygen ion conductor; oxygen ion conductor-based reactor as **nitrogen oxide** removal **catalyst** for exhaust gas treatment)

IT Reactors

(for exhaust **gas** treatment; **oxygen** ion
conductor-based reactor as **nitrogen oxide**
removal **catalyst** for exhaust gas treatment)

IT Alkali metal oxides
Alkaline earth oxides
Transition metal oxides
(on cathode of reactor; oxygen ion conductor-based reactor as
nitrogen oxide removal **catalyst** for
exhaust gas treatment)

IT Exhaust **gases** (engine)
Ionic conductors
(**oxygen** ion conductor-based reactor as **nitrogen
oxide** removal **catalyst** for exhaust gas
treatment)

IT 7440-06-4, Platinum, uses
(electrodes, on oxygen ion conductor; oxygen ion conductor-based
reactor as **nitrogen oxide** removal
catalyst for exhaust gas treatment)

IT 1304-28-5D, Barium oxide, compd. with indium oxide 1304-76-3D,
Bismuth oxide, compd. with yttrium oxide **1306-38-3D,
Cerium oxide**, compd. with metal oxides
1309-48-4D, Magnesium oxide, compd. with metal oxides 1312-43-2D,
Indium oxide, compd. with flash, with small Barium oxide
1312-81-8D, Lanthanum oxide, compd. with metal oxides 1314-11-0D,
Strontium oxide, compd. with metal oxides **1314-23-4D,
Zirconium oxide**, compd. with metal oxides
1314-36-9D, Yttrium oxide, compd. with metal oxides 12024-21-4D,
Gallium oxide, compd. with metal oxides 12064-62-9D, Gadolinium
oxide, compd. with metal oxides
(oxygen ion conductor contg.; oxygen ion conductor-based reactor
as **nitrogen oxide** removal **catalyst**
for exhaust gas treatment)

IT 11104-93-1, **Nitrogen oxide**, uses 12136-45-7,
Potassium oxide, uses
(oxygen ion conductor-based reactor as **nitrogen
oxide** removal **catalyst** for exhaust gas
treatment)

L38 ANSWER 2 OF 22 HCA COPYRIGHT 2006 ACS on STN
137:341584 Mediated electrochemical oxidation of biological waste
materials. Carson, Roger W.; Bremer, Bruce W. (The C & M Group,
LLC, USA). PCT Int. Appl. WO 2002085793 A1 **20021031**, 97
pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES,
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,
NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR,
TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,

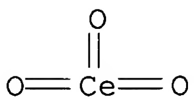
TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US12795 20020424. PRIORITY: US 2001-2001/PV28570U 20010424; US 2002-2002/127604 20020423.

AB Mediated electrochem. oxidn. treats, oxidizes and destroys liq., solid, or mixed solid and liq. biol. waste, including medical, infectious, pathol., animal, sanitary, mortuary, ship, veterinary, pharmaceutical and combined waste. A preferred embodiment of the MEO process used in this invention generates the perbromate ion as the oxidizing mediator species will be used to destroy stainless steel products such as sharps, which include but are not limited to syringe needles, scalpels, and sutures. Electrolytes contain oxidized forms of reversible redox couples produced in an anode compartment. Oxidized forms of redox couples are produced by anodic oxidn. or reaction with oxidized forms of other redox couples. Oxidized species of the redox couples oxidize the biol. waste mols. and are reduced and reoxidized. The redox cycle continues until all oxidizable waste and intermediate reaction products have undergone oxidn. The overall process results in the biol. waste being converted to carbon dioxide, water, and a small amt. of inorg. compds. in soln. or as a ppt., which will be extd. by the inorg. compd. removal and treatment system. Temps. between ambient and 1000 .degree.C avoid formation of dioxins or furans.

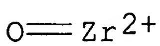
IT **1306-38-3, Cerium oxide ceo2,** processes **1345-13-7, Cerium oxide** ce2o3 **12133-57-2, Cerium oxide** ceo3 **12298-97-4,** Zirconium(2+), oxo- **12600-79-2, Zirconium oxide** zr2o5 **14797-55-8,** Nitrate, processes **99886-86-9,** Zirconyl peroxide **474124-04-4, Zirconium oxide** (Zr2O7)
(electrochem. mediator; mediated electrochem. oxidn. of biol. waste materials)

RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1345-13-7 HCA
CN Cerium oxide (Ce2O3) (6CI, 8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12133-57-2 HCA
CN Cerium oxide (CeO3) (8CI, 9CI) (CA INDEX NAME)



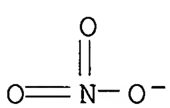
RN 12298-97-4 HCA
CN Zirconyl ion(2+) (8CI, 9CI) (CA INDEX NAME)



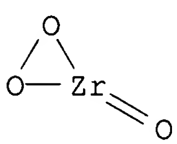
RN 12600-79-2 HCA
CN Zirconium oxide (Zr2O5) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2
Zr	2	7440-67-7

RN 14797-55-8 HCA
CN Nitrate (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 99886-86-9 HCA
CN Zirconium, oxoperoxy- (9CI) (CA INDEX NAME)



RN 474124-04-4 HCA
CN Zirconium oxide (Zr2O7) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	7	17778-80-2
Zr	2	7440-67-7

IT **7727-37-9**, Nitrogen, processes

(incorporated into isopolyanion mediators; mediated electrochem. oxidn. of biol. waste materials)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

N
|||
N

IC ICM C02F001-46
ICS C25F005-00
CC 60-2 (Waste Treatment and Disposal)
Section cross-reference(s): 59
IT **Catalysts**
(added to electrolyte to speed mediated electrochem. processes; mediated electrochem. oxidn. of biol. waste materials)
IT 71-52-3, Bicarbonate, processes 463-79-6, Carbonic acid, processes 563-69-9, MonoPeroxycarbonic acid 1301-96-8, Silver oxide ago 1303-52-2, Auric hydroxide 1303-58-8, Auric oxide 1304-29-6, Barium peroxide 1305-79-9, Calcium peroxide **1306-38-3, Cerium oxide ceo2**, processes
1308-04-9, Cobalt oxide co2o3 1308-14-1, Chromium hydroxide cr(oh)3 1308-38-9, Chromium oxide cr2o3, processes 1309-60-0, Lead oxide (PbO2) 1312-46-5, Iridium oxide ir2o3 1313-13-9, Manganese dioxide mno2, processes 1313-27-5, Molybdenum oxide (MoO3), processes 1313-96-8, Niobium pentoxide 1313-97-9, Neodymium oxide nd2o3 1314-06-3, Nickel oxide ni2o3 1314-15-4, Platinum oxide pto2 1314-18-7, Strontium peroxide 1314-22-3, Zinc peroxide 1314-27-8, Lead sesquioxide 1314-32-5, Thallium sesquioxide 1314-35-8, Tungsten trioxide wo3, processes 1314-41-6, Lead oxide pb3o4 1314-62-1, Vanadium oxide (V2O5), processes 1317-36-8, Plumbous oxide, processes 1317-54-0, Ferrite 1344-55-4, Titanium peroxide tio3 1344-58-7, Uranium oxide uo3 **1345-13-7, Cerium oxide**
ce2o3 2466-09-3, Pyrophosphoric acid 3812-32-6, Carbonate, processes 7601-90-3, Perchloric acid, processes 7722-86-3, Monoperoxysulfuric acid 7738-94-5, Chromic acid (H2CrO4) 7778-39-4, Arsenic acid 7782-68-5, Iodic acid 7782-91-4, Molybdic acid 7783-03-1, Tungstic acid 7783-08-6, Selenic acid 7789-31-3, Bromic acid 7790-92-3, Hypochlorous acid 7790-93-4, Chloric acid 10043-35-3, Orthoboric acid, processes 10343-62-1, Metaphosphoric acid (HPO3) 10380-08-2, Triphosphoric acid 11116-47-5, Molybdate 11120-48-2, Telluric acid 12002-97-0, Silver sesquioxide 12005-67-3, Americium dioxide 12016-80-7, Cobalt hydroxide oxide 12017-00-4, Cobalt oxide coo2 12018-01-8, Chromium dioxide cro2 12030-49-8, Iridium oxide iro2 12030-50-1, Iridium oxide (IrO3) 12035-36-8, Nickel oxide nio2 12036-04-3,

Palladium oxide pdo2 12036-05-4, Praseodymium oxide pro2 12036-10-1, Ruthenium dioxide ruo2 12036-15-6, Terbium oxide tbo2 12036-32-7, Praseodymium oxide pr2o3 12036-35-0, Rhodium oxide rh2o3 12036-36-1, Ruthenium oxide ruo3 12036-41-8, Terbium oxide tb2o3 12036-71-4, Uranium oxide uo4 12048-50-9, Bismuth tetroxide 12054-72-7, Stannic hydroxide 12059-95-9, Plutonium oxide (PuO2) 12060-06-9, Ruthenium oxide ru2o3 12125-54-1, Nickel(1+), hydroxy- **12133-57-2**, **Cerium oxide** ceo3 12134-79-1, GErmanic acid 12135-13-6, Mercuric hydroxide 12135-42-1, Ruthenium hydroxide Ru(OH)3 12135-49-8, Rhodium hydroxide (Rh(OH)4), (T-4)- 12137-27-8, Rhodium oxide rho2 12137-44-9, Ruthenium oxide ru2o5 12143-28-1, Polonium oxide (PoO3) 12165-03-6, Plutonium oxide pu2o5 12168-64-8, Lead hydroxide (PbOH1+) 12179-34-9, Titanium(2+), peroxy- 12181-34-9, Ruthenium hydroxide ru(OH)4 12188-35-1 12228-79-4, Tetraboric acid H2B4O7 12254-53-4, Americium tetrahydroxide 12258-53-6, Borate(2-), heptaoxotetra- 12298-67-8, Mercuric peroxide **12298-97-4**, Zirconium(2+), oxo- 12299-69-3, Iron(2+), hydroxy- 12299-76-2, Plumbate (Pb(OH)O1-) 12300-16-2, Plumbate (PbO32-) 12311-78-3, Plutonium oxide puo3 12323-66-9, Americyl ion(2+ 12401-90-0, Neodymium oxide ndo2 12447-33-5, Borate(1-), hydroxyhexaoxotetra- 12503-09-2, Peroxyniobate (NbO2(**O2**)1-) 12529-60-1, Germanate (Ge5(OH)O101-) **12600-79-2**, **Zirconium oxide** zr2o5 12725-92-7, Platinum oxide pt2o3 13444-71-8, Periodic acid 13463-67-7, Titanium oxide (TiO2), processes 13470-24-1 13517-11-8, Hypobromous acid 13598-52-2, Peroxymonophosphoric acid 13813-62-2, Tetraphosphoric acid 13825-81-5, Peroxydiphosphoric acid (H4P2O8) 13898-47-0, Chlorous acid 13907-45-4, Chromate cro42- 13907-47-6, Dichromate 13981-20-9, Vanadate (VO3-) 14066-19-4, Phosphate, hydrogen, processes 14066-20-7, Phosphate, dihydrogen, processes 14100-65-3, Metaborate 14124-68-6, Selenate 14127-61-8, Calcium ion, processes 14213-97-9, Orthoborate 14259-84-8, Molybdate (HMoO41-) 14265-44-2, Phosphate, processes 14280-50-3, Lead ion pb2+, processes 14302-87-5, Mercuric ion, processes 14311-52-5, Tungstate wo42- 14332-21-9, Hypoiodous acid 14332-31-1, Hydrogen niobate (HNbO3) 14333-13-2, Permanganate 14333-18-7, Vanadate (VO43-) 14333-21-2, Perruthenate (RuO4-) 14333-22-3, Ruthenate (RuO42-), (T-4)- 14380-61-1, Hypochlorite 14380-62-2, Hypobromite 14452-57-4, Magnesium peroxide 14546-48-6, Manganese ion mn3+, processes 14627-67-9, Thallic ion, processes 14701-21-4, Silver ion ag+, processes 14701-22-5, Nickel ion ni2+, processes **14797-55-8**, Nitrate, processes 14797-73-0, Perchlorate 14808-79-8, Sulfate, processes 14866-68-3, Chlorate 14913-52-1, Neodymium ion nd3+, processes 14996-02-2, Sulfate, hydrogen-, processes 14998-27-7, Chlorite 14998-57-3, Selenate, hydrogen- 15046-91-0, Silver ion Ag2+, processes 15056-35-6,

Periodate (IO41-) 15065-65-3, Hypoiodite 15092-81-6, Peroxydisulfate ((SO3)2O22-) 15158-11-9, Cupric ion, processes 15158-12-0, Lead ion pb4+, processes 15391-91-0 15438-31-0, Ferrous ion, processes 15454-31-6, Iodate 15541-45-4, Bromate 15543-40-5, Zirconium ion Zr+4, processes 15584-04-0, Arsenate 15596-54-0, Chromate (CrO42-), monohydrogen 15785-09-8, Cerium hydroxide (Ce(OH)3) 15845-23-5, Tellurate (TeO42-) 15906-92-0, Chromium(2+), hydroxy- 16065-83-1, Chromium ion cr3+, processes 16065-84-2, Germanium ion Ge4+, processes 16065-88-6, Palladium ion pd2+, processes 16065-89-7, Rhodium ion rh3+, processes 16065-90-0, Cerium ion ce4+, processes 16065-92-2, Thorium ion th4+, processes 16397-91-4, Manganese ion mn2+, processes 16408-24-5, Iron(1+), dihydroxy- 16469-16-2, Praseodymium trihydroxide 16518-47-1, Dihydrogen arsenate 16637-16-4, Uranyl ion 16844-87-4, Arsenate (AsO43-), monohydrogen 16887-00-6, Chloride, processes 18252-79-4, Vanadium(1+), dioxo- 18282-10-5, Stannic oxide 18923-26-7, Cerium ion ce3+, processes 19445-25-1, Perbromic acid 19583-16-5, Cuprate CuO21- 20074-52-6, Ferric ion, processes 20334-17-2, Praseodymium ion pr4+, processes 20427-56-9, Ruthenium oxide ruo4 20461-54-5, Iodide, processes 20499-55-2, Iodite (IO21-) 20561-59-5, Rhodium, ion (Rh1+), processes 20611-56-7, Tungsten hydroxide oxide peroxide (W(OH)2O(O2)) 20681-14-5, processes 21057-99-8, Neptunyl ion(1+) 21132-88-7, Tungstate(2-), trioxoperoxy- 21563-95-1, Niobate (NbO31-) 21792-06-3, Arsenate (AsO31-) 21879-62-9, Bismuth ion bi3-, processes 22119-26-2, Niobate nbo43- 22537-22-0, Magnesium ion, processes 22537-39-9, Strontium ion sr2+, processes 22537-50-4, Stannic ion, processes 22537-56-0, Thallous ion, processes 22537-58-2, Polonium ion po2+, processes 22541-12-4, Barium ion, processes 22541-14-6, Praseodymium ion pr3+, processes 22541-20-4, Terbium ion tb3+, processes 22541-25-9, Hafnium ion hf4+, processes 22541-44-2, Plutonium ion pu4+, processes 22541-46-4, Americium ion am3+, processes 22541-53-3, Cobalt ion co2+, processes 22541-58-8, Ruthenium ion ru4+, processes 22541-59-9, Ruthenium ion ru2+, processes 22541-60-2, Rhodium ion rh2+, processes 22541-63-5, Cobalt ion co3+, processes 22541-64-6, Nickel ion ni3+, processes 22541-70-4, Plutonium ion pu3+, processes 22541-88-4, Ruthenium ion ru3+, processes 22542-10-5, Platinum ion Pt2+, processes 22555-00-6, Iridium ion ir3+, processes 22569-48-8, Zinc(1+), hydroxy- 22840-44-4, Ferrate (Fe(OH)O1-) 22853-00-5, Plutonyl ion(2+) 22878-02-0, Americyl ion(1+ 22890-32-0, Germanate GeO32- 22967-56-2, Plutonyl ion(1+) 23078-02-6, Niobium oxide peroxide (NbO2(OOH)) 23689-41-0, Periodate I2O94- 23713-49-7, Zinc ion, processes 24573-97-5, Chromate (CrO33-) 24959-67-9, Bromide, processes 25141-14-4, Iridium tetrahydroxide 26398-91-4, Borate (B2O54-) 26404-66-0, Pernitric acid 26450-38-4, Vanadate (VO43-), monohydrogen 27641-41-4, Peroxydicarbonic acid 27805-32-9,

Plumbate pbo22- 30770-97-9, Iodous acid 31865-44-8 34274-25-4
35366-11-1, Argentate AgO1- 35984-07-7, Bismuth oxide bi2o5
36905-27-8, Hafnium(2+) oxo- 37382-01-7, Nickelate nio22-
37691-27-3, Bromous acid 38668-37-0, Stannate (SnO32-)
39051-24-6, Zincate (ZnO22-)
(electrochem. mediator; mediated electrochem. oxidn. of biol.
waste materials)

IT 39201-27-9, Borate H2BO3- 39321-12-5, Manganate 39349-73-0,
Perborate 41618-72-8, Bismuth(2+), hydroxy- 41705-98-0,
Cerium(3+), hydroxy- 43336-67-0, Thorium(2+), oxo- 43470-59-3,
Borate (BO33-), hydrogen 50814-37-4, Copper peroxide 52057-05-3,
Cuprate CuO22- 52110-71-1, Ferrate 53293-42-8, Chromite (anion)
57362-08-0, Bismuthate (BiO31-) 57425-17-9, Iridium hydroxide
59458-31-0, Tantalate tao31- 60294-90-8, Gold peroxide auo2
60370-37-8, Germanate (Ge5O112-) 60635-32-7, Titanium(1+), oxo-
62647-38-5, Germanate (Ge(OH)O21-) 62905-81-1, Bismuth(1+), oxo-
64128-13-8, Periodate (IO53-) 65046-83-5, Bismuthate (BiO21-)
65365-91-5, Cobaltate (Co(OH)O1-) 65597-34-4, Neptunium oxide npo3
67062-60-6, Cerium(2+), hydroxy- 67251-55-2, Ruthenium(2+), dioxo-
67588-88-9, Chromium(1+), dihydroxy- 77883-44-4, Platinum trioxide
78885-79-7, Nickelate (Ni(OH)O1-) 79235-94-2, Palladium oxide
(PdO3) 80441-12-9, Iron(1+), peroxy- 80441-13-0, Iron(2+),
peroxy- 80680-07-5, Palladium oxide pd2o3 81256-78-2,
Peroxydiselenic acid ([(HO)SeO2]**O2**) 81735-99-1
81736-00-7 81931-07-9 91934-12-2, Stannate (Sn(OH)O21-)
92076-86-3, Molybdate (MoO41-) 98943-14-7, Titanate (Ti(OH)O21-)
99886-86-9, Zirconyl peroxide 99900-43-3, Zincate
(Zn(OH)O1-) 100356-34-1, Tantalum hydroxide oxide peroxide
(Ta(OH)O(**O2**)) 107480-19-3, Tellurate (TeO41-), hydrogen
109973-81-1, Gold(1+), oxo- 112868-56-1 114348-12-8, Vanadate
(V2(OH)3O41-) 115518-64-4, Iron(1+), superoxido- 119176-24-8,
Cuprate (Cu(OH)O1-) 127241-68-3, Bismuth oxide bi4o7
128206-90-6, Ruthenate (Ru(OH)O41-) 132516-16-6, Vanadic(V) acid
(H4V6O17) 144013-64-9, Zirconate (Zr(OH)O21-) 144122-92-9,
Palladate (PdO22-) 148020-55-7 148753-26-8, Palladate pdo32-
150148-58-6, Germanium hydroxide oxide (Ge2(OH)2O3) 150148-60-0,
Germanium hydroxide oxide (Ge4(OH)2O7) 152629-75-9, Neptunium
peroxide (Np(**O2**)2), (T-4)- 163686-95-1, Copper oxide
cu2o3 171263-24-4, Niobium oxide peroxide (Nb2O3(**O2**)2)
184684-50-2, Hafnium oxide peroxide hfo(**o2**) 198642-16-9,
Platinate (PtO42-), (T-4)- 198830-41-0, Titanium(1+), hydroxy-
217082-84-3, Vanadium hydroxide oxide (V2(OH)4O3) 252652-70-3,
Silver(1+), oxo- 331267-19-7, Vanadate (VO51-) 433227-62-4,
Arsenic(1+), peroxy- 474124-02-2, Thallium oxide (Tl3O5)
474124-03-3, Germanium hydroxide oxide (Ge5(OH)2O9)
474124-04-4, Zirconium oxide (Zr2O7)
474124-05-5, Tantalum oxide (Ta2O7) 474124-06-6, Tellurium
hydroxide oxide (Te(OH)O3) 474124-07-7 474124-08-8, Chlorate

($ClO5^{3-}$) 474124-09-9 474124-10-2, Bromate ($BrO5^{3-}$) 474124-11-3 474124-12-4, Ruthenium hydroxide oxide ($Ru(OH)_2O_3$) 474124-13-5, Rhodium oxide (RhO_3) 474124-14-6, Americium oxide (Am_2O_5) 474265-52-6, Aurate ($Au(OH)_2O^{1-}$) 474265-53-7, Aurate ($Au(OH)O_2^{2-}$) 474265-54-8, Aurate (AuO_3^{3-}) 474265-55-9, Mercurate ($Hg(OH)O^{1-}$) 474265-56-0, Plumbate ($Pb(OH)O_2^{1-}$) 474265-57-1 474265-59-3, Polonate (PoO_3^{2-}) 474265-60-6 474265-62-8 474265-64-0, Manganate ($Mn(OH)O^{1-}$) 474265-66-2, Nickelate (NiO_4^{2-}) 474265-68-4 474265-69-5 474265-70-8, Platinate (PtO_3^{2-}) 474265-71-9 474265-72-0 474265-73-1, Thorate ($Th(OH)O_3^{1-}$) 474265-75-3, Thorium oxide peroxide (ThO(**O2**)) 474265-76-4, Uranate ($U(OH)O_4^{1-}$) 474265-77-5, Uranate (UO_5^{2-}) 474265-78-6, Americium oxide peroxide (AmO(**O2**))
(electrochem. mediator; mediated electrochem. oxidn. of biol. waste materials)

IT 7429-90-5, Aluminum, processes 7439-88-5, Iridium, processes 7439-89-6, Iron, processes 7439-92-1, Lead, processes 7439-93-2, Lithium, processes 7439-95-4, Magnesium, processes 7439-96-5, Manganese, processes 7439-97-6, Mercury, processes 7439-98-7, Molybdenum, processes 7440-02-0, Nickel, processes 7440-03-1, Niobium, processes 7440-04-2, Osmium, processes 7440-05-3, Palladium, processes 7440-06-4, Platinum, processes 7440-09-7, Potassium, processes 7440-15-5, Rhenium, processes 7440-16-6, Rhodium, processes 7440-17-7, Rubidium, processes 7440-18-8, Ruthenium, processes 7440-20-2, Scandium, processes 7440-21-3, Silicon, processes 7440-22-4, Silver, processes 7440-23-5, Sodium, processes 7440-24-6, Strontium, processes 7440-25-7, Tantalum, processes 7440-26-8, Technetium, processes 7440-31-5, Tin, processes 7440-32-6, Titanium, processes 7440-33-7, Tungsten, processes 7440-36-0, Antimony, processes 7440-38-2, Arsenic, processes 7440-39-3, Barium, processes 7440-41-7, Beryllium, processes 7440-42-8, Boron, processes 7440-43-9, Cadmium, processes 7440-44-0, Carbon, processes 7440-46-2, Cesium, processes 7440-47-3, Chromium, processes 7440-48-4, Cobalt, processes 7440-50-8, Copper, processes 7440-56-4, Germanium, processes 7440-57-5, Gold, processes 7440-58-6, Hafnium, processes 7440-62-2, Vanadium, processes 7440-65-5, Yttrium, processes 7440-66-6, Zinc, processes 7440-67-7, Zirconium, processes 7440-69-9, Bismuth, processes 7440-70-2, Calcium, processes 7553-56-2, Iodine, processes 7704-34-9, Sulfur, processes 7723-14-0, Phosphorus, processes 7726-95-6, Bromine, processes **7727-37-9**, Nitrogen, processes 7782-41-4, Fluorine, processes 7782-49-2, Selenium, processes 7782-50-5, Chlorine, processes 13494-80-9, Tellurium, processes
(incorporated into isopolyanion mediators; mediated electrochem. oxidn. of biol. waste materials)

L38 ANSWER 3 OF 22 HCA COPYRIGHT 2006 ACS on STN

137:298811 A study of the behaviour of Pt supported on **CeO2-ZrO2**/Al2O3-BaO as **NOx** storage-reduction **catalyst** for the treatment of lean burn engine emissions. Liotta, L. F.; Macaluso, A.; Arena, G. E.; Livi, M.; Centi, G.; Deganello, G. (ISMN-CNR, Palermo, 90146, Italy). Catalysis Today, 75(1-4), 439-449 (English) **2002**. CODEN: CATTEA. ISSN: 0920-5861. Publisher: Elsevier Science B.V..

AB The behavior of a Pt (1 wt. percent) supported on **CeO2-ZrO2** (20 wt. percent)/Al2O3 (64 wt. percent)-BaO (16 wt. percent) as a novel **NOx** storage-redn. **catalyst** was studied by reactivity tests and DRIFT expts. and compared with that of Pt (1 wt. percent)-BaO (15 wt. percent) on Al2O3. The former **catalyst**, designed as a hydrothermally stable sample, was composed of an Al2O3 modified with Ba ions and an over-layer of **CeO2-ZrO2**. Results showed that during calcination, Ba ions migrated over the **catalyst** surface which showed good **NOx** storage-redn. behavior, comparable with that of Pt-BaO on Al2O3, although the Ba ions result showed much better dispersed.

IT **1314-23-4**, Zirconia, uses
(over-layer of ceria and; temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IT **1306-38-3**, Ceria, uses
(over-layer of zirconia and; temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

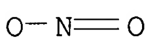
IT **7727-37-9**, Nitrogen, processes **10102-43-9**, Nitric oxide, processes
(temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)

RN 7727-37-9 HCA

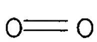
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

IT **10102-44-0, Nitrogen dioxide,** processes
(temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)
RN 10102-44-0 HCA
CN Nitrogen oxide (NO_2) (8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7,** Oxygen, reactions
(temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST lean burn engine exhaust emission selective **catalytic** redn propene; **nitrogen oxide** exhaust **emission catalytic** storage redn; ceria zirconia overlayer alumina barium oxide supported platinum **catalyst**
IT Reduction **catalysts**
(over-layered, supported platinum; temp. effect on selective **catalytic** redn. of **nitrogen oxide** in lean burn engine exhaust gas over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)
IT Exhaust gases (engine)
(temp. effect on selective **catalytic** redn. of

nitrogen oxide in lean burn engine exhaust gas
over ceria/zirconia over-layered, alumina-barium oxide-supported
platinum)

IT **1314-23-4**, Zirconia, uses
(over-layer of ceria and; temp. effect on selective
catalytic redn. of **nitrogen oxide** in
lean burn engine exhaust gas over ceria/zirconia over-layered,
alumina-barium oxide-supported platinum)

IT **1306-38-3**, Ceria, uses
(over-layer of zirconia and; temp. effect on selective
catalytic redn. of **nitrogen oxide** in
lean burn engine exhaust gas over ceria/zirconia over-layered,
alumina-barium oxide-supported platinum)

IT 7440-06-4, Platinum, uses
(over-layered and supported; temp. effect on selective
catalytic redn. of **nitrogen oxide** in
lean burn engine exhaust gas over ceria/zirconia over-layered,
alumina-barium oxide-supported platinum)

IT 1304-28-5, Barium oxide, uses
(platinum supported on alumina and; temp. effect on selective
catalytic redn. of **nitrogen oxide** in
lean burn engine exhaust gas over ceria/zirconia over-layered,
alumina-barium oxide-supported platinum)

IT 1344-28-1, Alumina, uses
(platinum supported on barium oxide and; temp. effect on
selective **catalytic** redn. of **nitrogen**
oxide in lean burn engine exhaust gas over ceria/zirconia
over-layered, alumina-barium oxide-supported platinum)

IT 115-07-1, Propene, reactions
(reductant; temp. effect on selective **catalytic** redn.
of **nitrogen oxide** in lean burn engine exhaust
gas over ceria/zirconia over-layered, alumina-barium
oxide-supported platinum)

IT **7727-37-9**, Nitrogen, processes **10102-43-9**, Nitric
oxide, processes
(temp. effect on selective **catalytic** redn. of
nitrogen oxide in lean burn engine exhaust gas
over ceria/zirconia over-layered, alumina-barium oxide-supported
platinum)

IT **10102-44-0**, **Nitrogen dioxide**, processes
11104-93-1, **Nitrogen oxide**, processes
(temp. effect on selective **catalytic** redn. of
nitrogen oxide in lean burn engine exhaust gas
over ceria/zirconia over-layered, alumina-barium oxide-supported
platinum)

IT **7782-44-7**, Oxygen, reactions
(temp. effect on selective **catalytic** redn. of
nitrogen oxide in lean burn engine exhaust gas

over ceria/zirconia over-layered, alumina-barium oxide-supported platinum)

L38 ANSWER 4 OF 22 HCA COPYRIGHT 2006 ACS on STN

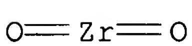
136:204461 **CeO_2-ZrO_2** binary oxides for **NO_x** removal by sorption. Haneda, Masaaki; Morita, Tomoko; Nagao, Yukinori; Kintaichi, Yoshiaki; Hamada, Hideaki (National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, 305-8565, Japan). Physical Chemistry Chemical Physics, 3(21), 4696-4700 (English) **2001**. CODEN: PPCPFQ. ISSN: 1463-9076. Publisher: Royal Society of Chemistry.

AB **NO_x** (NO in the presence of **O_2**) removal by **CeO_2-ZrO_2** binary oxides was studied. **CeO_2-ZrO_2** prepd. by a modified sol-gel method [CZ(SG)] showed high **NO_x** sorption capacity; **CeO_2-ZrO_2** prepd. by a co-pptn. method [CZ(CP)] was not effective. In both cases, **NO_x** was removed by adsorption on the surface but not by absorption into the bulk. In-situ diffuse reflectance Fourier transform IR measurements demonstrated **NO_x** was adsorbed as several types of nitrates. X-ray diffraction measurements showed the formation of a complete solid soln., $Ce_{0.5}Zr_{0.5}O_2$, for CZ(SG) and the presence of sep. phases of **CeO_2** and **ZrO_2** for CZ(CP). Homogeneous mixing of Ce and Zr ions in the solid soln. was considered an important factor for the high **NO_x** sorption capacity of CZ(SG). This high **NO_x** sorption capacity was also accounted for by the presence of a large amt. of basic sites and high **catalytic** activity for NO oxidn. to **NO_2**, the first step in the **NO_x** removal process.

IT **1314-23-4**, Zirconia, reactions
(binary oxide with ceria; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas** **nitrogen oxides** by sorption)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)

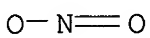


IT **1306-38-3**, Ceria, reactions
(binary oxide with zirconia; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas** **nitrogen oxides** by sorption)

RN 1306-38-3 HCA

CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

IT 10102-44-0, Nitrogen dioxide, processes
(prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
RN 10102-44-0 HCA
CN Nitrogen oxide (NO2) (8CI, 9CI) (CA INDEX NAME)



IT **10102-43-9**, Nitric oxide, processes
(prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST exhaust **gas nitrogen oxide** sorption removal; ceria zirconia binary oxide **nitrogen oxide** sorption; storage redn **catalyst** ceria zirconia binary oxide
IT Surface area
(exhaust gas storage-redn. **catalyst**; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
IT **Catalysts**
(exhaust gas storage-redn.; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
IT Exhaust gases (engine)
Sorption
(prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
IT **1314-23-4**, Zirconia, reactions
(binary oxide with ceria; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas**

nitrogen oxides by sorption)
IT **1306-38-3**, Ceria, reactions
(binary oxide with zirconia; prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
IT **10102-44-0**, **Nitrogen dioxide**, processes
(prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)
IT **10102-43-9**, Nitric oxide, processes 11104-93-1, **Nitrogen oxide**, processes
(prepn. method and surface basicity effect on ceria-zirconia binary oxide storage-redn. **catalyst** removal of exhaust **gas nitrogen oxides** by sorption)

L38 ANSWER 5 OF 22 HCA COPYRIGHT 2006 ACS on STN
136:139031 **Catalytic** treatment of a gas using rhodium **catalyst** for reduced **nitrogen oxide emissions.** Djega-Mariadassou, Gerald; Thomas, Cyril; Gorce, Olivier (Rhodia Terres Rares, Fr.; Universite Pierre et Marie Curie, Paris VI). PCT Int. Appl. WO 2002007864 A1 **20020131**, 17 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (French). CODEN: PIXXD2. APPLICATION: WO 2001-FR2201 20010709. PRIORITY: FR 2000-9678 20000724.
AB The invention concerns a method for treating a **gas** to reduce **nitrogen oxide emission**. The method uses a **catalytic** compn. comprising an active phase on a support where the active phase is based on rhodium in the form Rhx+ and at least another element selected from palladium and platinum, preferably at a ratio of the other element(s) to Rh of .gtoreq.1:1; the support is based on **cerium oxide** and **zirconium oxide** preferably in a 1:9 to 9:1 ratio. The **catalytic** compn. may be prepd. by depositing the Rh on the support, heat treating in the presence of a reducing gas, e.g., H and/or CO, and then depositing the other element(s). The method is particularly useful for treating gases from diesel engines or engines functioning on lean mixts., most esp. gases with a high **O** content, including **gases** derived from gas turbines, from gas-fired or coal-fired steam plant boilers or from internal combustion engines; the gas may also contain water

vapor and preferably contains some hydrocarbons. The **catalytic** system and the use of the **catalytic** compn. to manuf. the system are also claimed.

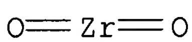
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(**catalyst** support; **catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-94
ICS B01J023-46

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST exhaust gas denitrification **catalyst** rhodium palladium platinum; ceria zirconia support gas denitrification **catalyst**

IT Exhaust gases (engine)
Reduction **catalysts**
(**catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

IT Exhaust gases (engine)
(diesel; **catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

IT Flue gases
(power-plant flue gases; **catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(**catalyst** support; **catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

IT 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
(**catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

IT 11104-93-1, **Nox**, processes
(**catalytic** treatment of gas using rhodium-platinum-palladium **catalyst** for reduced **nitrogen oxide emissions**)

L38 ANSWER 6 OF 22 HCA COPYRIGHT 2006 ACS on STN
135:111200 Supported CuO+Ag/Partially Stabilized Zirconia **Catalysts** for the Selective **Catalytic** Reduction of **NOx** under Lean Burn Conditions. Sadykov, Vladislav A.; Bunina, R. V.; Alikina, G. M.; Ivanova, A. S.; Kochubei, D. I.; Novgorodov, B. N.; Paukshtis, E. A.; Fenelonov, V. B.; Zaikovskii, V. I.; Kuznetsova, T. G.; Beloshapkin, S. A.; Kolomiichuk, V. N.; Moroz, E. M.; Matyshak, V. A.; Konin, G. A.; Rozovskii, A. Ya.; Ross, J. R. H.; Breen, J. P. (Boreskov Institute of Catalysis, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, 630090, Russia). Journal of Catalysis, 200(1), 117-130 (English) **2001**. CODEN: JCTLA5. ISSN: 0021-9517. Publisher: Academic Press.

AB Thermally stable cubic mesoporous **ZrO2** stabilized by alk.-earth cations (Ca, Sr, Ba) were synthesized by co-pptn. followed by refluxing in the presence of surfactants. These systems were used as supports for Cu cations, then modified by adding Ag nanoparticles using impregnation or photoassisted deposition techniques. Structural, textural, and surface features of these nanosystems were studied by transition electron microscopy, X-ray diffraction, extended x-ray absorption fine structure spectroscopy, N adsorption isotherms, small-angle x-ray scattering, Fourier transform IR spectroscopy of adsorbed CO, and temp.-programmed desorption of adsorbed **NOx** species. Partially-stabilized **ZrO2** possessed a disordered cubic structure. A higher tendency of bulky Ba cation to segregate in the surface layer was reflected in a higher degree of surface disordering, higher concn. of hydroxyls, and greater coordination unsatn. of isolated Cu cations. In contrast to such traditional supports as .gamma.-Al2O3, stabilized **ZrO2** supports appeared to favor formation of small reactive (probably, 3-dimensional) clusters of Cu cations possessing an increased reactivity and decreased strength of O-bonding with these cations. It was reflected in decreased thermal stability of surface nitrite and nitrate species located at these centers vs. such species on the surface of CuO/Al2O3 **catalysts**. This feature seems to be primarily detd. by the specificity of the surface structure of fluorite-like supports (**CeO2, ZrO2**). Ag incorporation into Cu oxidic clusters decreased the strength of Cu-O bonds and the thermal stability of adsorbed nitrite-nitrate species. For samples prepd. by photo-deposition, the clustering degree of Cu cations was usually lower than in samples prepd. by traditional impregnation procedures. (c) 2001 Academic Press.

IT **1314-23-4**, Zirconia, uses
(copper oxide/silver supported by; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IT **7782-44-7**, Oxygen, reactions
(selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

O=O

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 66, 67
ST exhaust **gas nitrogen oxide** selective **catalytic** redn; hydrocarbon selective **catalytic** redn **nitrogen oxide**; copper oxide silver redn **catalyst**; alk earth stabilized zirconia **catalyst** support
IT Hydrocarbons, reactions
(reductant; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)
IT Exhaust gases (engine)
Reduction **catalysts**
(selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)
IT Alkaline earth oxides
(zirconia stabilized with; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)
IT 7440-22-4, Silver, uses
(copper oxide loaded with; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by

hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

IT **1314-23-4**, Zirconia, uses
(copper oxide/silver supported by; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

IT 11104-93-1, **Nitrogen oxide**, processes
(selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

IT **7782-44-7**, Oxygen, reactions
(selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

IT 1304-28-5, Barium oxide, uses 1305-78-8, Calcium oxide, uses 1314-11-0, Strontium oxide, uses
(zirconia stabilized with; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

IT 1317-38-0, Copper oxide (CuO), uses
(zirconia-supported; selective **catalytic** redn. of exhaust **gas nitrogen oxides** by hydrocarbons over alk. earth-stabilized zirconia-supported copper oxide/silver in excess oxygen under lean burn conditions)

L38 ANSWER 7 OF 22 HCA COPYRIGHT 2006 ACS on STN

134:330806 Exhaust gas purifying system. Yamamoto, Shinji; Kanesaka, Hiroyuki; Onodera, Hitoshi; Hanaki, Yasunari; Suga, Katsuo; Morita, Hiroshi; Hiramoto, Yoshiaki; Kaneko, Hiroaki (Nissan Motor Co., Ltd., Japan). Eur. Pat. Appl. EP 1094206 A2 **20010425**, 59 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-123007 20001023. PRIORITY: JP 1999-300265 19991021; JP 1999-347290 19991207; JP 1999-356436 19991215; JP 2000-298832 20000929.

AB An exhaust gas purifying system for an automotive internal combustion engine comprises a **NOx** treating **catalyst** for reducing **NOx** disposed in an exhaust gas passageway of a combustion device, to reduce **NOx** in presence of reducing components in exhaust gas. Addnl., a hydrogen enriching device is disposed upstream of the **NOx** treating **catalyst** with respect to flow of exhaust gas from the combustion device and arranged to increase a ratio of hydrogen to total reducing components in at least one of combustion gas and

exhaust gas so as to meet relations represented by following formulas (1) and (2), when redn. of **NOx** is carried out by the **NOx** treating **catalyst**: [H2/TR]d < [H2/TR]u [H2/TR]d .gtoreq. 0.3 where [H2/TR]u is a ratio between a concn. [H2]u of hydrogen and a concn. [TR]u of total reducing components in at least one of exhaust gas in the exhaust gas passageway upstream of the hydrogen enriching device and combustion gas in a state before undergoing the hydrogen ratio increasing by the hydrogen enriching means; and [H2/TR]d is a ratio between a concn. [H2]d of hydrogen and a concn. [TR]d of total reducing components in exhaust gas in the exhaust gas passageway upstream of the **NOx** treating **catalyst** and downstream of the hydrogen enriching device.

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IT **1314-23-4D**, Zirconia, solid, acidic
(for suppression of hydrogen consumption; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM F01N003-20
ICS B01D053-94; F02D041-02

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67

ST exhaust **gas** purifying system **nitrogen oxide**; hydrogen enrichment alumina **nitrogen oxide** removal exhaust gas

IT Hydrocarbons, processes
(exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

IT Engines
(exhaust systems; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx** **catalyst**)
IT Exhaust gases (engine)
(internal combustion engine; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT **Gas** sensors
(**oxygen**; exhaust **gas** purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT 335673-15-9, Calcium strontium **zirconium oxide** ($Ca_{0.15}Sr_{0.05}Zr_{0.8}O_2$) 335673-16-0, Calcium magnesium **zirconium oxide** ($Ca_{0.15}Mg_{0.05}Zr_{0.8}O_2$) 335673-17-1, Barium calcium **zirconium oxide** ($Ba_{0.05}Ca_{0.15}Zr_{0.8}O_2$) 335673-18-2
(CO reforming **catalyst** component; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT 1304-28-5, Barium oxide, uses 335673-22-8, Calcium magnesium **zirconium oxide** ($Ca_{0.1}Mg_{0.1}Zr_{0.8}O_2$) 335673-23-9, Copper zinc oxide ($Cu_{0.2}Zn_{0.8}O$)
(H enrichment **catalyst**; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT **1306-38-3**, Ceria, uses 1314-13-2, Zinc oxide, uses **1314-23-4**, Zirconia, uses 7440-05-3, Palladium, uses 335673-06-8, Magnesium **zirconium oxide** ($Mg_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-07-9, Calcium **zirconium oxide** ($Ca_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-08-0, Strontium **zirconium oxide** ($Sr_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-09-1, Barium **zirconium oxide** ($Ba_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-10-4, Titanium **zirconium oxide** ($Ti_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-11-5, Aluminum **zirconium oxide** ($Al_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-12-6, Tungsten **zirconium oxide** ($W_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-13-7, Molybdenum **zirconium oxide** ($Mo_{0.01-0.5}Zr_{0.5-0.99}O_2$) 335673-14-8, Zinc **zirconium oxide** ($Zn_{0.01-0.5}Zr_{0.5-0.99}O_2$)
(exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT 1333-74-0, Hydrogen, reactions
(exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)
IT 630-08-0, Carbon monoxide, processes 11104-93-1, **Nitrogen oxide**, processes
(exhaust gas purifying system employing hydrogen enriching device

disposed upstream of **NOx catalyst**)

IT **1314-23-4D**, Zirconia, solid, acidic 335673-19-3, Titanium tungsten **zirconium oxide** (Ti0.05W0.15Zr0.8O2) 335673-20-6, Aluminum tungsten **zirconium oxide** (Al0.05W0.15Zr0.8O2) 335673-21-7
(for suppression of hydrogen consumption; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

IT 1302-88-1, Cordierite
(honeycomb carrier component; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

IT 1344-28-1, Alumina, processes
(hydrocarbon reforming **catalyst** component; exhaust gas purifying system employing hydrogen enriching device disposed upstream of **NOx catalyst**)

L38 ANSWER 8 OF 22 HCA COPYRIGHT 2006 ACS on STN

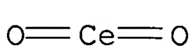
134:120011 **Nitrogen oxide** (**NOx**) removal from exhaust gas by **catalyst.** Ito, Yoshihiko; Shinjo, Hirofumi; Harada, Masashi (Toyota Central Research and Development Laboratories, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2001020723 A2 **20010123**, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-189171 19990702.

AB **NOx** removal is carried out in **O**-enriched **atm.** using a **catalyst** composed of a noble metal and a component capable of absorbing **NOx** in a temp. range whose boundary does not exceeds the **catalytically** active temp. of the noble metal and the removal comprises a step of detecting that the temp. of an exhaust gas is increasing and a step of intermittently adding a reducing agent at the time when the temp. is found increasing. Owing to the controlled **NOx** absorptive temp. of the component, **NOx** can efficiently be reduced in excess O and temp. increasing atm. The **NOx** removal is for diesel exhaust gas treatment.

IT **1306-38-3, Cerium oxide**, uses **1314-23-4**, Zirconia, uses
(**nitrogen oxide** adsorptive component in **catalyst; nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)

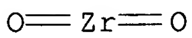
RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)



RN 1314-23-4 HCA

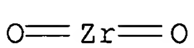
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



IC ICM F01N003-08
ICS F01N003-08; F01N003-20; F01N003-36
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST exhaust **gas nitrogen oxide** removal **catalyst**; adsorbent noble metal **nitrogen oxide** redn
IT Exhaust **gases** (engine)
(diesel; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT Exhaust **gases** (engine)
(**nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT Noble metals
(**nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT Reduction **catalysts**
(**nitrogen oxide**-adsorption type; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT **Catalysts**
(three-way; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT 7631-86-9, Silica, uses
(**catalyst** support; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT **1306-38-3, Cerium oxide**, uses
1309-48-4, Magnesia, uses **1314-23-4**, Zirconia, uses
(**nitrogen oxide** adsorptive component in **catalyst**; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)
IT 7440-06-4, Platinum, uses
(**nitrogen oxide** redn. **catalyst**; **nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined

adsorptive and **catalytic** properties)
IT 11104-93-1, **Nitrogen oxide**, processes
(**nitrogen oxide** removal by **nitrogen oxide**-adsorptive **catalyst** with defined adsorptive and **catalytic** properties)

L38 ANSWER 9 OF 22 HCA
134:104961 Design of advanced automotive exhaust **catalysts.**
Muraki, H.; Zhang, G. (Johnson Matthey Japan Incorporated, Tochigi, 329-1412, Japan). Catalysis Today, 63(2-4), 337-345 (English) **2000.** CODEN: CATTEA. ISSN: 0920-5861. Publisher: Elsevier Science B.V..
AB Rh is a crit. component of current automotive 3-way **catalysts** (TWC), particularly with regard to **NOx** and CO conversion at rich and stoichiometric air:fuel ratios (A/F). Rh supported on **CeO2** was active for **NOx** and CO conversions, but could be deactivated easily by high temp. aging. The cause of deactivation is ascribed to the sintering of **CeO2**. **ZrO2** incorporation into **CeO2** is reported to have high thermal durability in terms of **O2** storage capacity. There has been no report showing direct exptl. evidence that Rh-loaded on **CeO2-ZrO2** mixed oxides induced effects on TWC performance improvement in actual automotive exhaust. The Rh-**CeO2** interaction contributing to **NOx** redn. and the **catalytic** behavior of Rh-loaded **CeO2-ZrO2** mixed oxide are discussed. Incorporating **CeO2-ZrO2** into a **catalyst** offered significant improvement in light-off and warmed-up performances in model gas tests. Newly designed TWC including the Rh/**CeO2-ZrO2** component were aged and evaluated on an engine dynamometer. Results of engine dynamometer evaluation also showed that significant improvement in thermal durability can be achieved by using the optimized Rh-loaded **CeO2-ZrO2** mixed oxide.
IT **1314-23-4**, Zirconia, uses
(rhodium supported by ceria and; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses
(rhodium supported by zirconia and; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported

rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST design three way automotive exhaust **catalyst;** ceria supported rhodium three way **catalyst;** zirconia incorporation ceria supported rhodium **catalyst; nitrogen oxide** carbon monoxide conversion exhaust gas
IT Design
Exhaust gases (engine)
(design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT Hydrocarbons, processes
(design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT Redox reaction **catalysts**
(rhodium-loaded ceria-zirconia; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT **Catalysts**
(three-way, rhodium-loaded ceria-zirconia; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT 630-08-0, Carbon monoxide, processes 11104-93-1, **Nitrogen oxide**, processes
(design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT **1314-23-4**, Zirconia, uses
(rhodium supported by ceria and; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen oxides** and carbon monoxide)
IT **1306-38-3**, Ceria, uses
(rhodium supported by zirconia and; design of three-way **catalyst** contg. ceria-zirconia mixed oxide supported rhodium to remove exhaust **gas nitrogen**

oxides and carbon monoxide)

L38 ANSWER 10 OF 22 HCA COPYRIGHT 2006 ACS on STN
132:273512 Method and device for determination of gas concentration.
Sugaya, Satoshi; Nadanami, Norihiko; Ishida, Noboru; Ohshima, Takafumi (NGK Spark Plug Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000097903 A2 **20000407**, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-265282 19980918.

AB The title device is suited for use in detn. of **NOx** concn. in exhaust gases from automobile, boat, airplane, internal combustion devices, or in boiler combustion gas. The device comprises a 1st solid electrolyte cell consisting of a pair of electrodes formed on a solid electrolyte substrate with one electrode exposed to an **atm.** having const. **O** concn. and the 2nd electrode exposed to a sample gas, a means to provide an elec. voltage over the electrode pair in the cell, and a 2nd solid electrolyte cell having a pair of electrodes giving an output corresponding to the gas sample concn. The electrode pair in the 2nd cell are coated with different **catalysts** making one electrode active and the other inactive corresponding to the anal. gas.

IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM G01N027-416
ICS G01N027-419

CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 72

ST solid electrolyte **nitrogen oxide gas** sensor; automobile boat airplane boiler exhaust gas analysis

IT Ships
(boats; solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

IT Aircraft
Automobiles
Boilers

Ceramics
Combustion gases
Gas analysis
Solid electrolyte gas sensors
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

IT Alkaline earth oxides
Rare earth oxides
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

IT 11104-93-1, **Nitrogen oxide**, analysis
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

IT **1306-38-3**, Ceria, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthanum oxide (La2O3) 1314-20-1, Thoria, uses **1314-23-4**, Zirconia, uses 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 12055-23-1, Hafnia 12064-62-9, Gadolinia
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

IT 1305-78-8, Calcia, uses 1314-36-9, Yttria, uses
(solid electrolyte gas sensor for detn. of **nitrogen oxide** in exhaust gases)

L38 ANSWER 11 OF 22 HCA COPYRIGHT 2006 ACS on STN

132:170283 **NOx** trap **catalyst** for lean burn engines.
Kudla, Robert J.; Chattha, Mohinder S.; Watkins, William Henderson (Ford Global Technologies, Inc., A Subsidiary of Ford Motor Company, USA). Eur. Pat. Appl. EP 980707 A1 **20000223**, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-306393 19990816. PRIORITY: US 1998-134992 19980817.

AB The invention is a method of treating exhaust gases generated by an internal combustion engine using a **NOx** trap in the exhaust gas system. The method comprises locating a **nitrogen oxide** trap in the exhaust gas passage and cycling the air/fuel ratio of the exhaust gases entering the trap between lean and rich, such that the trap absorbs **nitrogen oxides** during the lean cycle and desorbs the **nitrogen oxides** when the concn. of the oxygen in the exhaust gas is lowered as during a rich cycle. The trap

comprises: (a) a trimetal oxides of Al-Mn-Zr, and (b) .gtoreq.0.1
wt.% Pt (based on the composite metal oxide wt.). The desorbed
NOx may be converted over the precious metal to **N2**
and **O2** by reductants like hydrocarbons present in the
exhaust gas. The invention is also the **catalyst** trap
material.

IT **1314-23-4, Zirconium oxide,** uses
11129-18-3, Cerium oxide
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

RN 11129-18-3 HCA

CN Cerium oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B01J023-656
ICS B01J023-63; B01J037-03; B01D053-94

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67

ST **nitrogen oxide** trap **catalyst** lean burn
engine

IT **Catalyst** supports
(honeycomb; **nitrogen oxides** trap
catalyst for lean burn engines)

IT Exhaust **gases** (engine)
(**nitrogen oxides** trap **catalyst** for
automotive engines)

IT Ceramics
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

IT Metals, uses
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

IT **1314-23-4, Zirconium oxide,** uses
1344-28-1, Aluminum oxide, uses 7440-05-3, Palladium, uses
7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
11129-18-3, Cerium oxide 11129-60-5,
Manganese oxide 12330-40-4, Cordierite 13463-67-7, Titanium
oxide, uses
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

IT 64-19-7, Acetic acid, reactions 67-63-0, Isopropyl alcohol,
reactions 555-31-7, Aluminum isopropoxide 1312-81-8, Lanthanum
oxide 2180-18-9, Manganese acetate 16941-12-1, Chloroplatinic

acid 52892-19-0
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

IT 11104-93-1, **Nitrogen oxide**, processes
(**nitrogen oxides** trap **catalyst** for
lean burn engines)

L38 ANSWER 12 OF 22 HCA COPYRIGHT 2006 ACS on STN

131:62544 Method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents. Montreuil, Clifford Norman; Kudla, Robert J.; Chatta, Mohinder S. (Ford Global Technologies, Inc., USA). Eur. Pat. Appl. EP 927571 A2 **19990707**, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-310450 19981218. PRIORITY: US 1997-992943 19971218.

AB The invention is a method of treating exhaust gases generated by an internal combustion engine, by locating a **nitrogen oxide** trap in the exhaust gas passage and cycling the air/fuel ratio of the exhaust gases entering the trap between lean and rich, such that the trap absorbs **nitrogen oxides** during the lean cycle and desorbs the **nitrogen oxides** during the rich cycle. The trap consists essentially of: (a) a porous support material comprising mostly .gamma.-alumina and (b) precious metal comprising at least 0.5 to 4 wt. % platinum deposited on the support, the amt. of the platinum being based on the wt. of said support material. The desorbed **nitrogen oxides** may be converted over the precious metal to **N2** and **O2** by reductants like hydrocarbons present in the exhaust gas.

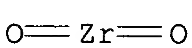
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(method for treating exhaust gases from an internal combustion
engine using platinum/alumina **nitrogen oxide**
absorbents)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-94
ICS B01J023-56

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51
ST **nitrogen oxide** trap exhaust gas treatment
IT **Catalyst** supports
(honeycomb; method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT Ceramics
Exhaust gases (engine)
(method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT Metals, uses
Precious metals
(method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT Absorbents
(**nitrogen oxides** trap; method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT 1302-88-1, Cordierite 1304-28-5, Baria, uses **1306-38-3**, Ceria, uses 1312-81-8, Lanthanum oxide **1314-23-4**, Zirconia, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 13463-67-7, Titania, uses
(method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT 11104-93-1, **Nitrogen oxide**, processes
(method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)
IT 1344-28-1, Aluminum oxide (Al2O3), uses
(.gamma.-; .alpha.-; method for treating exhaust gases from an internal combustion engine using platinum/alumina **nitrogen oxide** absorbents)

L38 ANSWER 13 OF 22 HCA COPYRIGHT 2006 ACS on STN
130:356322 Composition based on manganese for trapping **NOx** in treating exhaust gases. Hedouin, Catherine; Seguelong, Thierry; Fritz, Arno (Rhodia Chimie, Fr.). PCT Int. Appl. WO 9926715 A1 **19990603**, 21 pp. DESIGNATED STATES: W: AU, BR, CA, CN, JP, KR, MX, NO, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (French). CODEN: PIXXD2. APPLICATION: WO 1998-FR2496 19981123. PRIORITY: FR 1997-14771 19971125.
AB **Catalytic** compns. contg. Mn are described for removing **NOx** from exhaust **gases** contg. excess **oxygen**, e.g., by oxidn. of NO and adsorption of **NO2**

or redn. to **N_2**. One compn. comprises a supported phase contg. Mn and .gtoreq.1 other element selected from Tb, Gd, Eu, Sm, Nd and Pr on a support based on **CeO_2** or a mixt. of **CeO_2** and **ZrO_2**. The Mn and K are incorporated by addn. of $KMnO_4$ to the compn. Another compn. consists essentially of Mn and **CeO_2**. The compns. can be used for treating gases for removal of **NOx**.

IT **1306-38-3, Cerium oxide,** uses
(HSA 5; manganese compns. for trapping **NOx** in exhaust gases)
RN 1306-38-3 HCA
CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

IT **1314-23-4, Zirconium oxide,** uses
(manganese compns. for trapping **NOx** in exhaust gases)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IT **10102-43-9**, Nitric oxide, processes **10102-44-0, Nitrogen dioxide,** processes
(manganese compns. for trapping **NOx** in exhaust gases)
RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

N=O

RN 10102-44-0 HCA
CN Nitrogen oxide (NO_2) (8CI, 9CI) (CA INDEX NAME)

O-N=O

IC ICM B01D053-86
ICS B01D053-94; B01J023-34
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST manganese ceria exhaust **catalyst NOx** removal; **nitrogen oxide** exhaust **catalyst** manganese ceria
IT **Catalyst** supports
Catalysts

Exhaust gases (engine)
(manganese compns. for trapping **NOx** in exhaust gases)

IT **1306-38-3**, **Cerium oxide**, uses
(HSA 5; manganese compns. for trapping **NOx** in exhaust gases)

IT **1314-23-4**, **Zirconium oxide**, uses
7439-96-5, Manganese, uses 7440-00-8, Neodymium, uses 7440-10-0, Praseodymium, uses 7440-19-9, Samarium, uses 7440-27-9, Terbium, uses 7440-53-1, Europium, uses 7440-54-2, Gadolinium, uses 7722-64-7, Potassium permanganate
(manganese compns. for trapping **NOx** in exhaust gases)

IT **10102-43-9**, Nitric oxide, processes **10102-44-0**, **Nitrogen dioxide**, processes 11104-93-1, **Nitrogen oxide**, processes
(manganese compns. for trapping **NOx** in exhaust gases)

L38 ANSWER 14 OF 22 HCA COPYRIGHT 2006 ACS on STN

129:220321 Physicochemical and **catalytic** properties of **CeO2-ZrO2** solid solutions supported and dispersed on .gamma.-Al2O3. Nunan, John G. (ASEC Manufacturing, USA). Society of Automotive Engineers, [Special Publication] SP, SP-1288(Zirconium in Emission Control), 77-86 (English) **1997** . CODEN: SAESA2. ISSN: 0099-5908. Publisher: Society of Automotive Engineers.

AB Three-way conversion (TWC) **catalyst** supports were prepd. having **CeO2-ZrO2** solid soln. particles uniformly dispersed on .gamma.-Al2O3 as discrete crystallites. Support morphol. was characterized using scanning transmission electron microscopy (STEM) and transmission electron microscopy (TEM) anal. Temp. programmed redn. (TPR) and x-ray diffraction (XRD) analyses were also conducted on precious metal (PM)-contg. and PM-free samples before and after aging. Results were combined with performance measurements to demonstrate the beneficial effect of solid soln. formation on TWC **catalyst** activity. STEM and TEM anal. showed that well-dispersed **CeO2-ZrO2** solid soln. particles could be formed and simultaneously supported on a high surface area .gamma.-Al2O3 support. For samples calcined at .ltoreq.600.degree., crystallite sizes .ltoreq.50 .ANG. were formed vs. sizes >200 .ANG. in aged samples. TPR results suggested that for supports calcined at .ltoreq.600.degree., most **CeO2** present was reduced from the Ce4+ to the Ce3+ state at 250-700.degree.. H2 uptake in this temp. range was assigned to redn. of Ce4+ ions at the surface or sub-surface of **CeO2** crystallites. Addn. of Pt and Rh to the supports resulted in a synergistic redn. of PM and **CeO2**; most of the **CeO2** was reduced, esp. solid soln. contg. samples. After aging, it was further shown that **CeO2-ZrO2** solid soln. formation clearly promoted **CeO2** redn. at temps. typically

assocd. with surface **CeO2** redn. Thus, **CeO2-ZrO2** supported and dispersed solid solns. showed the same enhancements in redox activity as obsd. earlier for non-supported materials. XRD anal. confirmed that solid soln. formation occurred for Zr-contg. samples, giving a qual. measure of the **CeO2** crystallite size. Performance measurements were made on Zr-free and Zr-contg. air aged samples washcoated onto monolith substrates. For these **catalysts**, performance advantages were obsd. for Zr-contg. samples after lab. aging at 1000.degree. for 24 h in air. Aged sample characterization using a combination of XRD and TEM further confirmed that morphol. consisted of evenly dispersed **CeO2-ZrO2** solid soln. crystallites on the Al2O3 surface. Similar **CeO2** crystallite size trends were obsd. in XRD and TEM analyses; doping with Zr stabilized the **CeO2** with respect to sintering.

IT **1314-23-4**, Zirconia, uses
(alumina-supported ceria and; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

IT **1306-38-3**, Ceria, uses
(alumina-supported zirconia and; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

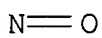
O═Ce═O

IT **7727-37-9**, Nitrogen, processes **10102-43-9**, Nitric oxide, processes
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)

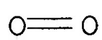
RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)



IT **7782-44-7**, Oxygen, reactions
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST alumina supported ceria zirconia **catalyst**; three way conversion **catalyst** ceria zirconia; physicochem **catalytic** property ceria zirconia **catalyst**; exhaust gas three way **catalyst** property
IT Exhaust gases (engine)
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT Precious metals
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT **Catalysts**
(three-way; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT **1314-23-4**, Zirconia, uses
(alumina-supported ceria and; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on

.gamma.-alumina three-way conversion **catalysts**)
IT **1306-38-3**, Ceria, uses
(alumina-supported zirconia and; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT 1344-28-1, Alumina, uses
(ceria-zirconia supported by; physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT 124-38-9, Carbon dioxide, processes 630-08-0, Carbon monoxide, processes 1333-74-0, Hydrogen, processes **7727-37-9**, Nitrogen, processes 7732-18-5, Water, processes **10102-43-9**, Nitric oxide, processes 11104-93-1, **Nitrogen oxide**, processes
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)
IT 115-07-1, Propene, reactions **7782-44-7**, Oxygen, reactions
(physicochem. and **catalytic** properties of precious metal-free and precious metal-contg. ceria-zirconia solid solns. supported and dispersed on .gamma.-alumina three-way conversion **catalysts**)

L38 ANSWER 15 OF 22 HCA COPYRIGHT 2006 ACS on STN
124:269015 **Catalysts** and process for decomposition of ammonia.
Sugishima, Noboru; Hagi, Mitsuharu; Kobayashi, Motonobu (Nippon Catalytic Chem Ind, Japan). Jpn. Kokai Tokkyo Koho JP 08024651 A2 **19960130** Heisei, 9 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1994-171287 19940722.
AB The **catalysts** contain (A) mixed oxides selected from binary Ti-Si oxides, binary Ti-**Zr oxides**, and ternary Ti-Si-**Zr oxides**; (B) oxides of metals selected from V, W, and Mo, and (C) (compds.) of metals selected from Fe, Mn, Cu, Cr, Co, Ce, and Ni. Ammonia is decompd. with the **catalysts**. The method is effective for NH3-contg. **O**-rich **gases** at wide temp. range without generating **NOx**, and even in the presence of S oxides, H sulfide, S-contg. org. compds., and/or N-contg. org. compds.
IT **1306-38-3**, **Cerium dioxide**, uses
(**catalyst** component; decompn. **catalysts** for

ammonia)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

IT **7727-37-9**, Nitrogen, processes
(org. compds.; decompn. **catalysts** for ammonia and)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

IC ICM B01J023-85
ICS B01D053-58; B01J035-10
CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67
ST ammonia decompn **catalyst** oxide; waste gas ammonia decompn **catalyst**
IT Decomposition **catalysts**
Waste gases
(decompn. **catalysts** for ammonia)
IT **1306-38-3, Cerium dioxide**, uses
1308-04-9, Cobalt oxide (co2o3) 1309-37-1, Iron oxide (fe2o3), uses 1313-27-5, Molybdenum trioxide, uses 1313-99-1, Nickel monoxide, uses 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium oxide (v2o5), uses 1317-38-0, Copper monoxide, uses 11118-57-3, Chromium oxide 52337-09-4, Silicon titanium oxide
(**catalyst** component; decompn. **catalysts** for ammonia)
IT 7664-41-7, Ammonia, processes
(decompn. **catalysts** for ammonia)
IT 7783-06-4, Hydrogen sulfide, processes 12624-32-7, Sulfur oxide
(decompn. **catalysts** for ammonia and)
IT 7704-34-9, Sulfur, processes **7727-37-9**, Nitrogen, processes
(org. compds.; decompn. **catalysts** for ammonia and)

L38 ANSWER 16 OF 22 HCA COPYRIGHT 2006 ACS on STN
123:124247 Ion transport membranes with porous mixed conducting layer containing a **catalyst**.. Carolan, Michael Francis; Dyer, Paul Nigel (Air Products and Chemicals, Inc., USA). Eur. Pat. Appl. EP 663231 A2 **19950719**, 16 pp. DESIGNATED STATES: R: DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1995-100305

19950111. PRIORITY: US 1994-180938 19940112.

AB The present invention relates to surface **catalyzed** ion transport membranes which demonstrate superior oxygen flux. The membranes comprise a porous mixed conducting multicomponent metallic oxide layer having a first surface onto which a **catalyst** is deposited and a second surface which is contiguous with a dense mixed conducting multicomponent metallic oxide layer. Suitable **catalysts** to be deposited onto the porous mixed conducting layer include one or more metals or oxides of metals selected from Groups II, V, VI, VII, VIII, IX, X, XI, XV and the F block lanthanides of the Periodic Table of the Elements. The claimed membranes are capable of sepg. oxygen from **oxygen**-contg. **gaseous** mixts.

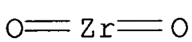
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(ion transport membranes with dense layer contg. **catalyst**
)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **7727-37-9P**, Nitrogen, preparation
(ion transport membranes with dense layer contg. **catalyst**
)

RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

IT **7782-44-7P**, Oxygen, processes
(sepn. of; ion transport membranes with dense layer contg.
catalyst)

RN 7782-44-7 HCA

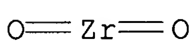
CN Oxygen (8CI, 9CI) (CA INDEX NAME)

IC ICM B01D053-22
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 23, 45, 59
ST ion transport membrane **catalyst** oxygen sepn
IT **Catalysts** and **Catalysis**
Membranes
Oxidation **catalysts**
(ion transport membranes with dense layer contg. **catalyst**
)
IT Hydrocarbons, preparation
(ion transport membranes with dense layer contg. **catalyst**
)
IT **1306-38-3**, Ceria, uses 1309-48-4, Magnesia, uses **1314-23-4**, Zirconia, uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-10-0, Praseodymium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses 7440-39-3, Barium, uses 7440-45-1, Cerium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 151510-00-8D, Barium cobalt iron praseodymium oxide (Ba0.8Co0.8Fe0.2Pr0.2O3), oxygen-deficient 151510-01-9D, oxygen-deficient 151534-11-1D, Barium cobalt iron lanthanum oxide (Ba0.8Co0.8Fe0.2La0.2O3), oxygen-deficient
(ion transport membranes with dense layer contg. **catalyst**
)
IT 7704-34-9P, Sulfur, preparation **7727-37-9P**, Nitrogen, preparation
(ion transport membranes with dense layer contg. **catalyst**
)
IT 74-82-8, Methane, reactions 11104-93-1, **Nitrogen oxide**, reactions 12624-32-7, Sulfur oxide
(ion transport membranes with dense layer contg. **catalyst**
)
IT **7782-44-7P**, Oxygen, processes
(sepn. of; ion transport membranes with dense layer contg. **catalyst**)

L38 ANSWER 17 OF 22 HCA COPYRIGHT 2006 ACS on STN
123:124246 Ion transport membranes with dense layer containing a **catalyst**.. Carolan, Michael Francis; Dyer, Paul Nigel (Air Products and Chemicals, Inc., USA). Eur. Pat. Appl. EP 663232 A2 **19950719**, 18 pp. DESIGNATED STATES: R: DE, FR, GB, NL. (English). CODEN: EPXXDW. APPLICATION: EP 1995-100306 19950111.

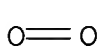
PRIORITY: US 1994-180582 19940112.
AB The present invention relates to surface **catalyzed** ion transport membranes which demonstrate superior oxygen flux. The membranes comprise a dense multicomponent metallic oxide layer having a first surface and a second surface wherein the first surface is coated with a **catalyst** such as a metal or an oxide of a metal selected from Groups II, V, VI, VII, VIII, IX, X, XI, XV and the F Block lanthanides of the Periodic Table of the Elements. One or more porous layers formed from a mixed conducting multicomponent metallic oxide or a material which is not mixed conducting under process operating conditions may be formed contiguous to the second surface of the dense layer. The claimed membranes are capable of sepg. oxygen from **oxygen**-contg. **gaseous** mixts.
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(ion transport membranes with dense layer contg. **catalyst**)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **7727-37-9P**, Nitrogen, preparation
(ion transport membranes with dense layer contg. **catalyst**)
RN 7727-37-9 HCA
CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

IT **7782-44-7P**, Oxygen, processes
(sepn. of; ion transport membranes with dense layer contg. **catalyst**)
RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-22
CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 23, 45, 59
ST ion transport membrane **catalyst** oxygen sepn
IT **Catalysts** and **Catalysis**
Membranes
Oxidation **catalysts**
(ion transport membranes with dense layer contg. **catalyst**)
IT Hydrocarbons, preparation
(ion transport membranes with dense layer contg. **catalyst**)
IT **1306-38-3**, Ceria, uses 1309-48-4, Magnesia, uses **1314-23-4**, Zirconia, uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-10-0, Praseodymium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses 7440-39-3, Barium, uses 7440-45-1, Cerium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses 151510-00-8D, Barium cobalt iron praseodymium oxide (Ba0.8Co0.8Fe0.2Pr0.2O3), oxygen-deficient 151510-01-9D, oxygen-deficient 151534-11-1D, Barium cobalt iron lanthanum oxide (Ba0.8Co0.8Fe0.2La0.2O3), oxygen-deficient
(ion transport membranes with dense layer contg. **catalyst**)
IT 7704-34-9P, Sulfur, preparation **7727-37-9P**, Nitrogen, preparation
(ion transport membranes with dense layer contg. **catalyst**)
IT 74-82-8, Methane, reactions 11104-93-1, **Nitrogen oxide**, reactions 12624-32-7, Sulfur oxide
(ion transport membranes with dense layer contg. **catalyst**)
IT **7782-44-7P**, Oxygen, processes
(sepn. of; ion transport membranes with dense layer contg. **catalyst**)

L38 ANSWER 18 OF 22 HCA COPYRIGHT 2006 ACS on STN
122:321340 Noble metal **catalysts** for reduction of **NOx** in exhaust **gases** containing excess **oxygen**.
Nunan, John Gerard; Kharas, Karl C. C.; Robota, Heinz Juergen (Alliedsignal Inc., USA). PCT Int. Appl. WO 9509687 A1

19950413, 27 pp. DESIGNATED STATES: W: JP; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1994-US11014 19940929. PRIORITY: US 1993-130340 19931001.

AB Removal of carbon monoxide, hydrocarbons, and **nitrogen oxides** from the exhaust gas from lean-burn, diesel and other engines which produce exhaust **gases** contg. excess **oxygen** is provided by supported noble metal **catalysts** which is treated by exposure to **oxygen** -inert **gas** mixts. to provide redn. of **nitrogen oxides** within a particular range of engine exhaust gas temps. Oxidn. of the remaining reducing gases is also accomplished.

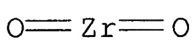
IT **1306-38-3**, Ceria, uses **1314-23-4**, Zirconia, uses
(support; noble metal **catalysts** for redn. of **NOx** in exhaust **gases** contg. excess **oxygen**)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01D053-94
ICS B01D053-56; B01D053-62; B01J037-14

CC 59-3 (Air Pollution and Industrial Hygiene)

ST exhaust **gas catalyst nitrogen oxide** removal; noble metal **catalyst** exhaust gas treatment

IT Exhaust gases
(noble metal **catalysts** for redn. of **NOx** in exhaust **gases** contg. excess **oxygen**)

IT Platinum-group metals
(noble metal **catalysts** for redn. of **NOx** in exhaust **gases** contg. excess **oxygen**)

IT Alkaline earth compounds
Rare earth oxides
(support; noble metal **catalysts** for redn. of **NOx** in exhaust **gases** contg. excess **oxygen**)

IT 630-08-0, Carbon monoxide, processes
(noble metal **catalysts** for redn. of **NOx** and CO in exhaust **gases** contg. excess **oxygen**)

IT 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses
(noble metal **catalysts** for redn. of **NO_x** in
exhaust **gases** contg. excess **oxygen**)
IT 11104-93-1, **Nitrogen oxide,** processes
(noble metal **catalysts** for redn. of **NO_x** in
exhaust **gases** contg. excess **oxygen**)
IT 409-21-2, Silicon carbide, uses 1302-88-1, Cordierite
($Mg_2[Al_4O_3(SiO_3)_5]$) **1306-38-3**, Ceria, uses
1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses
7631-86-9, Silica, uses 7727-43-7, Barium sulfate 13463-67-7,
Titania, uses 18282-10-5, Tin oxide (SnO_2)
(support; noble metal **catalysts** for redn. of
NO_x in exhaust **gases** contg. excess
oxygen)

L38 ANSWER 19 OF 22 HCA COPYRIGHT 2006 ACS on STN
115:165520 Integrated low emissions cleanup system for direct coal fired turbines: Final report. Siwajek, L. A.; Ku, D. (Helipump Corp., Cleveland, OH, USA). Report, DOE/MC/24256-2904; Order No. DE90015571, 64 pp. Avail. NTIS From: Energy Res. Abstr. 1991, 16(4), Abstr. No. 9355 (English) **1990**.
AB Solid oxide electrochem. systems were evaluated for the redn. of **NO_x** and SO_x in a coal-fired turbine exhaust. Y_2O_3 stabilized **CeO_2** and **ZrO_2** were studied as electrolytes 1600-2500.degree.F. Y_2O_3 stabilized **ZrO_2** was the most useful electrolyte and 2 high surface area geometries were developed. Pt was the electrode material; less noble metals were investigated, as well as conductive minerals, but replacement of the Pt was unsuccessful. Transition metal oxides were applied as electrocatalysts. With V and W coatings, SO_2 concns. were reduced 20-50% using an initial SO_2 concn. of .apprx.2500 ppm. Elec. efficiencies for the decompn. of SO_2 in the O contg. environment (1-4%) were .apprx.5%. Though electrocatalysts did allow for the destruction of NO (.apprx.400 ppm) in and **O** contg. **atm.**, the efficiencies were 1%. Limited investigation of perovskites demonstrated their potential as electrocatalysts in these extreme conditions.
IT **1306-38-3**, Ceria, analysis **1314-23-4**, Zirconia, analysis
(yttria-stabilized electrolytes, in electrochem. turbine exhaust treatment)
RN 1306-38-3 HCA
CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O══Zr══O

CC 59-4 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
ST **nitrogen oxide** removal turbine exhaust gas;
sulfur oxide removal turbine exhaust gas; turbine exhaust treatment solid oxide electrochem; electrocatalytic treatment turbine exhaust treatment
IT Electrodes
(**catalytic**, in turbine exhaust gas treatment)
IT Exhaust **gases**
(turbine, **nitrogen oxide** and sulfur oxide
removal from, by solid oxide electrochem. systems)
IT 11104-93-1
(exhaust **gases**, turbine, **nitrogen**
oxide and sulfur oxide removal from, by solid oxide electrochem. systems)
IT 11104-93-1, **Nitrogen oxide**, uses and
miscellaneous 12624-32-7, Sulfur oxide
(removal of, from turbine exhaust, by solid oxide electrochem. systems)
IT **1306-38-3**, Ceria, analysis **1314-23-4**, Zirconia,
analysis
(yttria-stabilized electrolytes, in electrochem. turbine exhaust treatment)

L38 ANSWER 20 OF 22 HCA COPYRIGHT 2006 ACS on STN
106:89502 Manufacture of a supported exhaust gas **catalyst**
containing precious and nonprecious metals in an oxide-coated ceramic honeycomb. Vogt, Wilhelm; Glaser, Hermann; Goedicke, Eitel (Hoechst A.-G. , Fed. Rep. Ger.). Ger. DE 3539127 C1
19870102, 5 pp. (German). CODEN: GWXXAW. APPLICATION: DE
1985-3539127 19851105.
AB A ceramic honeycomb is coated with Al2O3 and **ZrO2**,
impregnated with Fe and optionally Ni and Ce, and finally impregnated with Pt, Rh, and/or Pd and optionally Ce to give a supported **catalyst** for treating exhaust gases.
Pseudoboehmite 17.9 was stirred into water 24.5, acetic acid 360 was added to aid peptization and stirring was continued 2 h, Zr tetrapropylate (contg. **ZrO2** 28%) 4 g was stirred into the suspension for a **ZrO2** content of 7.7% based on Al2O3, and a ceramic honeycomb was coated with a layer contg. 17% Al2O3 +
ZrO2 from the suspension and calcined 4 h at 950.degree..
The coated honeycomb (wt. 625 g, water absorption capacity 121 mL) was soaked with 2 L acid soln. contg. Ce(NO3)3.6H2O 316 and

Fe(NO3)3.9H2O 335 g, blown with room-temp. air, dried by a air stream preheated to 250.degree. for 2 min and tempered at 600.degree. for 2 h, then soaked in 2 L aq. soln. contg. H2(PtCl6) (contg. 40% Pt) 14.74, RhCl3 (contg. 37.5% Rh) 3.14, and nitrilotriacetic acid 16 g with pH 10, blown with room-temp. air, dried by air preheated to 250.degree. for 2 min, and tempered at 550.degree. for 2 h to give a **catalyst** contg. Pt 1780, Rh 360 ppm, **CeO2** 1.19, Fe2O 0.63, and **ZrO2** 1.3%. **Catalyst** samples of 2.5-cm diam. and 7.52-cm length were used to treat a gas stream at 50,000 h-1 contg. **N2** 73.5, CO2 14.0, H2 0.33, CO 0.99, **O2** 1.0, water vapor 9.97 vol%, C3H6 500, and **NOx** 1000 ppm. The temp. for 50% conversion of CO, hydrocarbons and **NOx** was 200, 210, and 230.degree., resp. In other tests, with periodic variation of air-fuel ratio (pulsation frequency 0.5 Hz), aged **catalyst** samples gave 97, 98, and 98% conversions at 400.degree..

IT **1306-38-3**, Ceria, uses and miscellaneous
(**catalysts**, with precious metals, for exhaust gases)

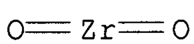
RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

IT **1314-23-4**, Zirconia, uses and miscellaneous
(coating from alumina and, on honeycomb support for precious metal-nonprecious metal oxide exhaust gas **catalyst**)

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM B01J023-89
ICS B01D053-36

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51

ST honeycomb supported exhaust gas **catalyst**; alumina zirconia coated exhaust **catalyst**; ceria exhaust gas **catalyst**; ferric oxide exhaust gas **catalyst**; nickel oxide exhaust gas **catalyst**; platinum exhaust gas **catalyst**; rhodium exhaust gas **catalyst**; palladium exhaust gas **catalyst**

IT Exhaust gases
(**catalysts** for treatment of, contg. precious metals and nonprecious metal oxides)

IT **Catalysts** and **Catalysis**
(exhaust gas, three-way, contg. precious and nonprecious metals

in alumina-zirconia coated honeycomb)

IT Hydrocarbons, uses and miscellaneous
(removal of, from exhaust gases, precious metal-nonprecious metal oxide **catalysts** for)

IT 7440-06-4, Platinum, uses and miscellaneous 7440-16-6, Rhodium, uses and miscellaneous
(**catalysts**, with nonprecious metal oxides, for exhaust gases)

IT **1306-38-3**, Ceria, uses and miscellaneous 1309-37-1, Ferric oxide, uses and miscellaneous 1313-99-1, Nickel oxide (NiO), uses and miscellaneous
(**catalysts**, with precious metals, for exhaust gases)

IT **1314-23-4**, Zirconia, uses and miscellaneous
(coating from alumina and, on honeycomb support for precious metal-nonprecious metal oxide exhaust gas **catalyst**)

IT 139-13-9, Nitrilotriacetic acid
(complexing agent, in prepn. of precious metal-nonprecious metal oxide exhaust gas **catalysts**)

IT 23519-77-9, Zirconium tetrapropylate
(hydrolysis of, for zirconia coating of support for precious metal-nonprecious metal oxide exhaust gas **catalysts**)

IT 12164-98-6, **Zirconium oxide** hydrate
(in coating of honeycomb support for precious metal-nonprecious metal oxide exhaust gas **catalyst**)

IT 10049-07-7, Rhodium trichloride 10108-73-3, Cerium nitrate 10421-48-4, Ferric nitrate 13138-45-9, Nickel nitrate 16941-12-1, Hexachloroplatinic acid
(in prepn. of precious metal-nonprecious metal oxide exhaust gas **catalysts**)

IT 64-19-7, Acetic acid, uses and miscellaneous
(peptizing aid, for pseudoboehmite, in alumina coating of support for exhaust gas **catalyst**)

IT 1318-23-6
(pseudo-, in coating of honeycomb support for precious metal-nonprecious metal oxide exhaust gas **catalyst**)

IT 115-07-1, Propylene, uses and miscellaneous 630-08-0, Carbon monoxide, uses and miscellaneous 11104-93-1, uses and miscellaneous
(removal of, from exhaust gases, precious metal-nonprecious metal oxide **catalysts** for)

L38 ANSWER 21 OF 22 HCA

105:231743 Automobile exhaust gas purging **catalyst**. Sawamura, Keiichi; Eto, Yoshiyuki; Mine, Junichi; Masuda, Goji (Nissan Motor Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61157347 A2 **19860717** Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-279766 19841228.

AB A monolithic support is coated with active Al_2O_3 contg. 1-5% Ce as

CeO2 and mixed with powd. **CeO2** 5-50 and
ZrO2 1-10% as the metal, and loaded with .gtoreq.1 of Pt,
Rh, and Pd. Thus, 2-4 mm diam. .gamma.-Al2O3 was immersed in aq.
Ce(NO3)3, dried, and calcined in air at 600.degree. for 1 h to
contain 1% Ce. A mixt. of alumina sol (10% boehmite alumina
suspension mixed with 10% HNO3) 2560.8, the Al2O3 1317.1,
CeO2 98.3, and **ZrO2** 21.6 g was ball-milled for 6
h. A 1.7 L monolithic support with 400 cells was immersed in the
coating slurry, calcined at 650.degree. for 2 h to be coated with
340 g oxides (Ce 5 and Zr 10%), loaded with Pt 0.82 and Rh 0.082 g,
and calcined at 600.degree. for 2 h. Automobile exhaust gas contg.
CO, **O2** 0.4-0.6 each, CO2 14.8-15.0%, NO 2500, hydrocarbons
1000 ppm, and balance **N2** was passed over at 750.degree. at
the outlet and space velocity 70,000/h for 100 h. The hydrocarbon,
CO, and NO removals were 92, 93, and 91%, resp., vs. 69, 60, and 61%
without Ce and Zr but loaded with Pt 1.9 and Rh 0.19 g.

IT **1306-38-3**, uses and miscellaneous **1314-23-4**, uses
and miscellaneous
(exhaust gas **catalysts** promoted by)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IT **10102-43-9**, uses and miscellaneous
(removal of, from exhaust gases, ceria- and zirconia-promoted
catalysts for)

RN 10102-43-9 HCA

CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

N=O

IC ICM B01J023-56
ICS B01D053-36

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 67

ST ceria promoted exhaust gas **catalyst**; zirconia promoted
exhaust gas **catalyst**

IT Exhaust gases
(**catalysts** for carbon monoxide and hydrocarbon removal

from, ceria- and zirconia-promoted)

IT **Catalysts** and **Catalysis**
(exhaust gas, ceria- and zirconia-promoted)

IT **1306-38-3**, uses and miscellaneous **1314-23-4**, uses and miscellaneous
(exhaust gas **catalysts** promoted by)

IT 7440-05-3, uses and miscellaneous 7440-06-4, uses and miscellaneous 7440-16-6, uses and miscellaneous
(exhaust gas **catalysts**, promoted by ceria and zirconia)

IT 630-08-0, uses and miscellaneous **10102-43-9**, uses and miscellaneous
(removal of, from exhaust gases, ceria- and zirconia-promoted **catalysts** for)

L38 ANSWER 22 OF 22 HCA COPYRIGHT 2006 ACS on STN

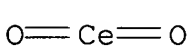
81:110970 Removal of **nitrogen oxides** from waste gas by **catalytic** reduction. Oshimura, Masakazu; Koori, Yoshizo; Miyamoto, Akiro; Aosoda, Hiroaki; Odani, Noboru; Watanabe, Osamu; Fujii, Shinichi (Hitachi Maxell, Ltd.). Jpn. Kokai Tokkyo Koho JP 49052193 **19740521** Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1972-94964 19720920.

AB **Catalysts** consisting of Ni, **CeO2**, Bi, and optionally Group VIII metals have high **catalytic** activity, are resistant to **catalyst** poison such as S, and useful for redn. of **N oxides** in waste gases. The Group VIII metals reduce the formation of NH3 during the redn. process of **N oxides** and increase the **catalytic** activity at low temps. Thus, Ni acetate 249, Ce acetate 157, and Bi acetate 38 wt.parts were dissolved in water. In the resulting soln., powd. ZnO2 (particle size 3-4 mm, porosity 50%) was immersed and fired at 600.degree. for 1 hr. After repeating the immersion and firing procedure 3-6 times, the **ZrO2** was kept in CO atm. for 0.5 hr to obtain a Ni-**CeO2**-Bi **catalyst** carried by **ZrO2**. The **catalyst** was packed in a reactor and a gas mixt. contg. NO 1500, hydrocarbon 700 ppm, CO 1.5, H2 1.5, **O2** 0.5, CO2 12, H2O 3%, and balance **N2** was passed through the reactor. The gas from the reactor contained 150 ppm NO and 400 ppm NH3.

IT **1306-38-3**
(**catalyst**, for **nitrogen oxide** removal from waste gas)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)



IT **10102-43-9**, uses and miscellaneous

(removal of, from waste gas, redn. **catalyst** for)
RN 10102-43-9 HCA
CN Nitrogen oxide (NO) (8CI, 9CI) (CA INDEX NAME)

N=O

INCL 13(9)G32; 13(9)G33; 13(7)A11
CC 59-2 (Air Pollution and Industrial Hygiene)
ST **catalyst nitrogen oxide** removal **gas**; redn **catalyst nitrogen oxide gas**
IT Reduction **catalysts**
(nickel-**cerium oxide**-bismuth, for **nitrogen oxide** removal from waste gas)
IT Waste **gases**
(**nitrogen oxide** removal from, redn. **catalysts** for)
IT 1314-13-2, uses and miscellaneous
(**catalyst** support, for **nitrogen oxide** removal from waste gas)
IT **1306-38-3** 7440-02-0, uses and miscellaneous 7440-69-9, uses and miscellaneous
(**catalyst**, for **nitrogen oxide** removal from waste gas)
IT **10102-43-9**, uses and miscellaneous
(removal of, from waste gas, redn. **catalyst** for)

=> => d l39 1-18 ti

L39 ANSWER 1 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Method and apparatus for analyzing mixtures of gases

L39 ANSWER 2 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Electrochemical oxygen pump cell containing metal oxide in subbing layer and mixed electrode potential-type **nitrogen oxides** sensor using the same

L39 ANSWER 3 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI **NOx**-decomposing electrode and **NOx** concentration-measuring apparatus

L39 ANSWER 4 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI **NOx**-decomposing electrode and **NOx** concentration-measuring apparatus

L39 ANSWER 5 OF 18 HCA COPYRIGHT 2006 ACS on STN

TI Apparatus for analyzing mixtures of gases

L39 ANSWER 6 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Reactor for exhaust gas treatment using solid-state electrolytic cell

L39 ANSWER 7 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Mediated electrochemical oxidation of destruction of sharps

L39 ANSWER 8 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Mediated electrochemical oxidation of food waste materials

L39 ANSWER 9 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI **Gas** sensing and **oxygen** pumping device

L39 ANSWER 10 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Method and apparatus for analyzing mixtures of gases

L39 ANSWER 11 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI **Nitrogen oxide gas** sensor

L39 ANSWER 12 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Method and device for determination of **NOx** gas

L39 ANSWER 13 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI IR-transmitting, low-expansion, transparent or translucent inorganic materials, especially glass-ceramics and composites, and their manufacture and use

L39 ANSWER 14 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Apparatus for controlling the **nitrogen oxide emissions** from domestic combustors

L39 ANSWER 15 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI A set of partition functions and equilibrium constants for 300 diatomic molecules of astrophysical interest

L39 ANSWER 16 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Molecules in red-giant stars. I. Column densities in models for K and M stars

L39 ANSWER 17 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Theoretical molecular abundances in cool stellar models

L39 ANSWER 18 OF 18 HCA COPYRIGHT 2006 ACS on STN
TI Principles of the fundamental valence vibration frequency change of diatomic molecules

=> d l39 4,6,12,14 cbib abs hitstr hitind

L39 ANSWER 4 OF 18 HCA COPYRIGHT 2006 ACS on STN

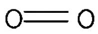
139:327303 **NOx**-decomposing electrode and **NOx** concentration-measuring apparatus. Nakagaki, Kunihiko; Suzuki, Hideyuki; Lee, Sang Jae; Nakasone, Osamu (NGK Insulators, Ltd., Japan). U.S. Pat. Appl. Publ. US 2003201171 A1 20031030, 15 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-419391 20030421. PRIORITY: JP 2002-127383 20020426.

AB The present invention relates to a **NOx**-decompg. electrode, i.e., an electrode for decompg. or reducing **NOx**, esp. for decompg. **NOx** to produce oxygen, and to a **NOx** concn.-measuring app. for measuring **NOx** contained in the atm. air or in the exhaust gas discharged from vehicles or automobiles. The **NOx** concn.-measuring app. comprises: (a) a first oxygen pump means for introducing a measurement gas from the outside of said app. into a first hollow space to adjust a partial pressure of oxygen in said measurement gas; and (b) a second oxygen pump means for pumping out oxygen contained in said measurement gas from said measurement gas having said partial pressure of oxygen controlled by said first oxygen pump means and controlling said partial pressure of oxygen to have a predetd. value at which a **NOx** component is reduced or decompd. to pump out oxygen produced when said **NOx** component contained in an atm. in a second hollow space is reduced or decompd., wherein: (1) a concn. of **NOx** in said measurement gas is detected by measuring a pumping current due to a pumping action of said second oxygen pump means of said **NOx** concn.-measuring app.; (2) a **NOx** -decompg. electrode of the second oxygen pump means for reducing or decompg. said **NOx** component has a plurality of cermet electrode layers each of which comprise an alloy of Pt--Rh and a ceramic component such as **ZrO2**; and (3) the resp. cermet electrode layers have different ratios between said alloy of Pt--Rh and the ceramic component. The detecting electrode comprises a first cermet electrode layer formed directly on a solid electrolyte layer and a second cermet electrode layer formed on the first cermet electrode layer. A ratio between an alloy of Pt-Rh and **ZrO2** in the first cermet electrode layer ranges from 20:80 to 50:50 by vol. ratio. On the other hand, a ratio between an alloy of Pt-Rh and **ZrO2** in the second cermet electrode layer ranges from 60:40 to 50:50 by vol. ratio.

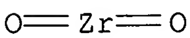
IT **7782-44-7**, Oxygen, processes
  (**NOx**-decompg. electrode and **NOx** concn.-measuring app.)

RN 7782-44-7 HCA

CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **1314-23-4**, Zirconia, uses
(partially or fully stabilized; **NOx**-decompg. electrode
and **NOx** concn.-measuring app.)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses
(stabilizer; **NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

IC ICM G01N027-26
INCL 204290010; 204426000
CC 59-1 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 79
ST cermet electrode platinum rhodium zirconia **gas** sensor
nitrogen oxide
IT Air analysis
Cermets
Electrodes
Gas analysis
(**NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
IT Exhaust gases (engine)
(anal. of; **NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
IT Gas sensors
(electrochem.; **NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
IT Gas sensors
(solid-state; **NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
IT 11104-93-1, **Nitrogen oxide**, analysis
(**NOx**-decompg. electrode and **NOx**
concn.-measuring app.)
IT **7782-44-7**, Oxygen, processes
(**NOx**-decompg. electrode and **NOx**
concn.-measuring app.)

IT 1305-78-8, Calcium oxide, uses 11107-71-4, Platinum alloy ptrh 12675-78-4, Platinum alloy ptrh
(**NOx**-decompg. electrode and **NOx** concn.-measuring app.)

IT **1314-23-4**, Zirconia, uses
(partially or fully stabilized; **NOx**-decompg. electrode and **NOx** concn.-measuring app.)

IT **1306-38-3**, Ceria, uses 1309-48-4, Magnesium oxide, uses 1314-36-9, Yttrium oxide y2o3, uses
(stabilizer; **NOx**-decompg. electrode and **NOx** concn.-measuring app.)

IT 1344-28-1, Alumina, uses
(used to cover entire detecting electrode; **NOx**-decompg. electrode and **NOx** concn.-measuring app.)

L39 ANSWER 6 OF 18 HCA COPYRIGHT 2006 ACS on STN

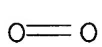
139:265103 Reactor for exhaust gas treatment using solid-state electrolytic cell. Kawamura, Tetsuo (Toyota Motor Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003265931 A2 20030924, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-72805 20020315.

AB The reactor for exhaust gas treatment and **NOx** removal comprises an O ion conductor, an anode formed on one face of the conductor, a cathode formed on the other face of the conductor, a HC (hydrocarbon) adsorption layer formed on the anode, and a lead wire connecting the anode and the cathode so as to form a closed circuit. The O ion conductor may be compounded metal oxides, e.g. **CeO_2**-Y_2O_3, **CeO_2**-Gd_2O_3, **CeO_2-ZrO_2**, **ZrO_2**-Y_2O_3, etc. The reactor has a high **NOx** removal efficiency in a high temp. and lean air/fuel condition as compared with a reactor having no HC adsorption layer.

IT **7782-44-7**, Oxygen, miscellaneous
(ion conductor, in reactor; reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)

RN 7782-44-7 HCA

CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, **Cerium dioxide**, uses
(solid electrolyte contg.; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)

RN 1306-38-3 HCA

CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

O=Ce=O

IT **1314-23-4, Zirconium dioxide**, uses
(solid electrolyte contg.; reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

IC ICM B01D053-94
ICS B01D053-56; B01D053-62; B01D053-72; B01D053-74; B01J019-08; B01J023-42
CC 60-4 (Waste Treatment and Disposal)
Section cross-reference(s): 72
ST exhaust **gas nitrogen oxide** removal reactor; solid electrolytic electrochem cell reactor
IT Hydrocarbons, processes
(adsorbents on anode of reactor; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT Adsorbents
(for hydrocarbons, on anode of reactor; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT Zeolite ZSM-5
(hydrocarbon adsorbent, on anode of reactor; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT Reactors
(in engine exhaust system; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT Exhaust gases (engine)
(reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT Electrochemical cells
(solid; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)
IT **7782-44-7**, Oxygen, miscellaneous
(ion conductor, in reactor; reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)
IT 7440-06-4, Platinum, uses

(lead wire in electrochem. cell; reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)

IT 11104-93-1, **Nitrogen oxide**, processes
(reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)

IT **1306-38-3**, **Cerium dioxide**, uses
1314-36-9, Yttrium sesquioxide, uses
(solid electrolyte contg.; reactor having oxygen ion-conductive solid electrochem. cell structure for **NOx** removal from exhaust gases)

IT 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth sesquioxide, uses 1307-96-6, Cobalt oxide, uses 1309-48-4, Magnesium oxide, uses 1312-43-2, Indium sesquioxide 1312-81-8, Lanthanum sesquioxide 1314-11-0, Strontium oxide, uses **1314-23-4**, **Zirconium dioxide**, uses 12064-62-9, Gadolinium sesquioxide 106830-29-9, Yttrium **zirconium oxide** (Y0.2Zr0.9O2.1)
(solid electrolyte contg.; reactor having oxygen ion-conductive solid electrochem. cell structure for exhaust gas treatment for **NOx** removal)

L39 ANSWER 12 OF 18 HCA COPYRIGHT 2006 ACS on STN

132:259843 Method and device for determination of **NOx** gas.
Sugaya, Satoshi; Nadanami, Norihiko; Ishida, Noboru; Ohshima, Takafumi (NGK Spark Plug Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000097905 A2 **20000407**, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-266505 19980921.

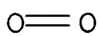
AB The title device is used for detn. of **NOx** in exhaust gases from automobile, boat, airplane, industrial combustion devices, or in boiler combustion gases. The device comprises a sample gas chamber having a diffusion resistor, a 1st O ion pump cell to remove O from inside and outside of the chamber, a 2nd cell contg. a pair of electrodes disposed on a solid electrolyte substrate with at least one of the electrodes facing to the sample gas chamber, a swith to on/off the elec. supply over the electrodes in the 2nd cell, a means to detect the O pumping elec. current between the electrodes in the 2nd cell generated by the decompn. of **NOx** while an elec. voltage is applied over the electrodes, and a control means for the 1st O pump cell based on the emf of the electrodes in the 2nd cell corresponding to a preset voltage supply.

IT **7727-37-9**, Nitrogen, analysis **7782-44-7**, Oxygen, analysis
(method and device for detn. of **NOx** gas)

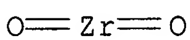
RN 7727-37-9 HCA

CN Nitrogen (8CI, 9CI) (CA INDEX NAME)

RN 7782-44-7 HCA
CN Oxygen (8CI, 9CI) (CA INDEX NAME)



IT **1314-23-4**, Zirconia, uses
(method and device for detn. of **NOx** gas)
RN 1314-23-4 HCA
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)



IT **1306-38-3**, Ceria, uses
(method and device for detn. of **NOx** gas)
RN 1306-38-3 HCA
CN Cerium oxide (CeO2) (8CI, 9CI) (CA INDEX NAME)

IC ICM G01N027-416
ICS G01N027-419
CC 79-2 (Inorganic Analytical Chemistry)
Section cross-reference(s): 47
ST solid electrolyte **nitrogen oxide** sensor
IT Ships
(boats; method and device for detn. of **NOx** gas)
IT Aircraft
Automobiles
Boilers
Combustion gases
Gas analysis
Solid electrolyte gas sensors
(method and device for detn. of **NOx** gas)
IT 11104-93-1, **Nitrogen oxide**, analysis
(method and device for detn. of **NOx** gas)
IT 124-38-9, Carbon dioxide, analysis **7727-37-9**, Nitrogen, analysis 7732-18-5, Water, analysis **7782-44-7**, Oxygen, analysis
(method and device for detn. of **NOx** gas)

IT **1314-23-4**, Zirconia, uses 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses 7440-74-6, Indium, uses
(method and device for detn. of **NO_x** gas)

IT 1305-78-8, Calcia, uses **1306-38-3**, Ceria, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthanum oxide 1314-36-9, Yttria, uses 12055-23-1, Hafnia 12064-62-9, Gadolinium oxide
(method and device for detn. of **NO_x** gas)

L39 ANSWER 14 OF 18 HCA COPYRIGHT 2006 ACS on STN

115:56207 Apparatus for controlling the **nitrogen oxide emissions** from domestic combustors. Nakashiba, Akio; Doi, Shoji; Sugimoto, Ichiro; Moriya, Koji; Tamura, Itsuro (Osaka Gas Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02254215 A2 **19901015** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-75645 19890327.

AB The title app. comprises an **O^{2-}**-conductive solid electrolyte body sandwiched between 2 oppositely-arranged electrodes in the flue gas passage, a d.c. elec. source, and means for introducing the flue gases from a burner into the passage to convert **NO_x** into **N_2** and **O^{2-}** in the anode side and to convert **O^{2-}** into **O_2** in the cathode side. The solid electrolyte is preferably made of stabilized **ZrO_2**, **CeO_2**, $CaTi_{0.95}Mg_{0.05}O_3$, or $Bi_{1.5}W_{0.24}O_5$. The electrode in the anode side is preferably made of Y-zeolite, or CuO/Cr_2O_3 for adsorbing and decompg. **NO_x** in the exhaust gas passage.

IT **1306-38-3, Cerium oxide (CeO_2)**, uses and miscellaneous **1314-23-4**, Zirconia, uses and miscellaneous
(stabilized, solid electrolyte, between cathode and anode sides, in control of **nitrogen oxide emissions** from domestic stoves)

RN 1306-38-3 HCA

CN Cerium oxide (CeO_2) (8CI, 9CI) (CA INDEX NAME)

O═Ce═O

RN 1314-23-4 HCA

CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

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IC   ICM  F23J015-00
     ICS  B01D053-34
CC   59-4 (Air Pollution and Industrial Hygiene)
ST   gas stove nitrogen oxide
     emission; electrolyte stove flue gas denitration
IT   Flue gases
        (from domestic stoves, nitrogen oxide
        emissions from, control of, app. for)
IT   Stoves
        (petroleum- or fuel gas-burning, nitrogen
        oxide emissions from, control of, app. for)
IT   Zeolites, uses and miscellaneous
        (Y, anodes from, in control of nitrogen oxide
        emissions from domestic stoves)
IT   1308-38-9, Chromium oxide (Cr2O3), uses and miscellaneous
     1317-38-0, Copper oxide (CuO), uses and miscellaneous
        (anodes from, in control of nitrogen oxide
        emissions from domestic stoves)
IT   11104-93-1, Nitrogen oxide, uses and
     miscellaneous
        (emissions, from domestic stoves, control of, app. for)
IT   134854-66-3, Calcium magnesium titanium oxide (CaMg0.05Ti0.95O3)
     1306-38-3, Cerium oxide (CeO2
     ), uses and miscellaneous 1314-23-4, Zirconia, uses and
     miscellaneous
        (stabilized, solid electrolyte, between cathode and anode sides,
        in control of nitrogen oxide
        emissions from domestic stoves)


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     FILE 'HCA' ENTERED AT 15:22:43 ON 08 FEB 2006
L40       115239 S (NITRIC# OR NITROUS#)(W)(OXIDE# OR MONOXIDE# OR DIOXIDE
L41         5180 S L40 AND (L11 OR L25 OR L26) AND (L12 OR L27 OR L28)
L42            5 S L41 AND L15
L43           24 S L41 AND L13 AND L14
L44            5 S L42 AND L19
L45           20 S L43 AND L19
L46            8 S (L44 OR L45) NOT (L37 OR L38)
L47            0 S L46 AND (1840-2002/PY OR 1840-2002/PRY)
L48            7 S L43 NOT (L37 OR L38 OR L39)
L49            0 S L48 AND (1840-2002/PY OR 1840-2002/PRY)
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